Conversational interaction between children using communication aids and their peers

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Abstract

This thesis uses the principles and practices of Conversation Analysis in an examination of conversational interaction between non-speaking children with Cerebral Palsy using voice output communication aids (VOCAs) and their speaking peers. In order to capture the unique and subtle ways in which these interactions are organised this thesis presents a detailed examination of three dyads.

Many children with Cerebral Palsy experience profound difficulty producing intelligible speech. Such children may be provided with communication aids, including VOCAs, as an alternative communication modality. Despite recognition of the value of children's peer relationships, few studies have focused on interaction between children using communication aids and their peers. The central aim of this thesis is to examine how such interactions are organised. In particular, this work is concerned with examining the role of the speaking partners in conversational organisation, how VOCAs contribute to interaction and how conversations are organised when non-speaking children participate through unintelligible vocalisations and non-verbal actions.

A significant feature of each dyad is the work that speaking partners do in organising particular types of structural integrity for the conversation. This includes speaking partners locating the production of VOCA mediated turns and non-verbal actions within specific sequential contexts. Such practices provide frameworks within which VOCA mediated contributions and non-verbal actions may be understood. VOCA use initiated outside such predefined sequential locations may be realised problematically. Speaking children may also seek to organise the interaction through the treatment of their partners' unintelligible vocalisations and non-verbal actions with rich meaning. In so doing, speaking partners portray children with Cerebral Palsy with particular types of competence.

By revealing the ways in which these children organise conversational interaction, this thesis highlights implications for intervention by Speech and Language Therapists who support children using communication aids in schools.

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Chapter 1

1.0 Introduction

At the heart of human experience lies the inherent drive for social interaction. Many children with severe motor impairment, such as Cerebral Palsy, are unable to produce intelligible speech and experience significant difficulties in communicating with others. Such children may seek to share communicative interaction through a range of different modalities including eye-pointing, vocalisation, gesture and facial expression. Yet for children with severe physical disabilities all these modes of communication are less transparent, creative or flexible than spoken language. These children may be supported in their interaction with others by the provision of communication aids such as charts and books of pictures, symbols and words, and developments in communication aid technology have made a large range of voice output communication aids (VOCAs) available.

Professionals acknowledge the role of communication partners in shaping the interaction experiences of children with physical disability who use communication aids, and a major focus of research in the field has been directed to the adult - child dyad including parents/caregivers and professionals (Calculator & Dollaghan, 1982; Harris, 1982; Light, Collier & Parnes, 1985a,b; Udwin & Yule, 1991; Basil, 1992; Jolleff, McConachie, Winyard, Jones, Wisbeach & Clayton, 1992; McConachie & Ciccognani, 1995; Pennington & McConachie, 1999). Such work has been concerned with quantifying observed behaviours and examining how partner actions support or restrict opportunities for self-expression and language development. For school aged children the focus of interaction shifts away from caregivers with the development of peer relationships. Although children's peer relationships are recognised as important domains of personal development (e.g., Strain & Odom, 1986; Erwin, 1993; Schneider, 2000), research concerned with interaction involving children using communication aids has only begun to address this issue. Very few published findings examining peer interaction are available (Clarke & Leech, 2003) and no research has yet examined in detail how these children accomplish interaction together. Consequently, Speech and Language Therapists concerned with supporting

the development of peer interaction can only draw on clinical experience and research derived from the adult – child interaction literature. The validity of using findings from such studies for peer-focused intervention planning is unproven. For example, it is possible that descriptions of interaction between children using communication aids and adults reflect the unequal roles of participants inherent in their relationships; for instance, the relationship between teacher and student traditionally is one of questioner and respondent (Mehan, 1979).

Furthermore, previous research has tended to focus on descriptions of communication skills, emphasising children's communicative deficits compared with spoken discourse. It is possible that this is an unavoidable outcome of employing quantitative methodologies derived from principles used in the analysis of spoken interaction. Such research considers the relative distribution of categories of variables between partners such as the range and frequency of communicative functions used. However, such approaches fail to reflect the subtlety and complexity of interactions observed in clinical experience. Consequently, although families and professionals are able to speculate on the types of difficulty that children using communication aids are likely to encounter in communicating with naturally speaking partners, research has only begun to document in detail how children using communication aids and their speaking partners accomplish everyday interaction.

This thesis aims to contribute to knowledge in the field by examining interaction between non-speaking children with Cerebral Palsy who use VOCAs and their naturally speaking peers. In addition, this work departs from research methodologies used previously in the study of social interaction involving children using communication aids by using the principles and practices of Conversation Analysis (CA) in the study of peer interaction. In particular the thesis is concerned with exploring the answers to a number of analytically and clinically motivated questions including: How does VOCA use come about? How are VOCAs used and what difficulties might non-speaking children and their peers encounter in VOCA use? How do the participants organise the accomplishment of conversational interaction when the VOCA is not used and children with Cerebral Palsy rely on communication resources such as vocalisation and non-verbal actions? What is the role of the speaking partner in organising the interaction?

The term Cerebral Palsy is used to describe a broad class of congenital, persistent, non-progressive disorders of movement and posture (Aicardi, 1998). Children with Cerebral Palsy who are the focus of this thesis are those with severe physical disability affecting all four limbs and who are non-ambulant. In describing these children as non-speaking, the thesis is concerned with children who have no functional intelligible speech. Such children may be able to produce vocalisations, which may involve the production of vowels and some indistinct consonants, but they are unable to use speech as an effective communication modality. It is those children who have been provided with and use voice output communication aids as their primary aided modality who are of particular interest.

CA is an empirical and inductive method for the study of naturally occurring interaction (Heritage, 1984b; Psathas, 1995; Hutchby & Wooffitt, 1998; ten Have, 1999). It is a procedure for identifying and describing the practices that participants use to organise and accomplish interaction together. CA contends that the evidence of organised procedures in interaction should be sought in detailed observation and description of recurring patterns of participants' behaviours. Such patterns are identified by examining the ways in which the participants themselves react to one another rather than by applying a priori assumptions or hypotheses to the data. Techniques of CA have been applied in a range of child-focused studies including research concerned with children's development (Wootton, 1997; Corrin, Tarplee & Wells, 2001) and interaction involving children with disabilities (Wootton, 1990; Tarplee & Barrow, 1999; Radford & Tarplee, 2000; Mahon, 2003). CA has also been applied to the study of interaction involving adults with progressive conditions using VOCAs (Bloch & Wilkinson, in press) and adults with Cerebral Palsy using communication aids (Collins & Murphy, 1994; Collins & Markova, 1995; Collins, 1996; Collins, Markova & Murphy, 1997; Collins & Markova, 1999).

In order to capture the detail of children's behaviours, and to reflect the variability in interactional practices reported more generally in the literature (e.g., Kraat 1985), the thesis is organised by the analysis of three dyads, each representing one episode of conversational interaction between a non-speaking child with Cerebral Palsy using a VOCA and a peer with natural speech.

1.1 Organisation of the thesis

Chapter two will provide a background to the thesis including a critical examination of relevant literature and a review of issues and practices in current assessment and intervention by Speech and Language Therapists working with children using communication aids. Chapter three is devoted to a description of the principles and practices of CA and is intended to orientate the reader who may be unfamiliar with this approach to its philosophical background, practices and findings relevant to this thesis. Chapter four will describe the methodology, including a detailed description of the children involved in the study, data collection procedures and method of analysis. The next three chapters report the analysis and findings from the three case studies. Each chapter of analysis examines how the conversation is accomplished, and specifically how the VOCA contributes to the interaction, how interaction progresses when the VOCA is not used, and the role taken by the naturally speaking child in conversational organisation. Criteria underpinning the order of presentation of the case studies are the balance of VOCA use versus non-verbal modalities observed and the similarity of some broad sequential patterns observed between dyads. In the first case study the VOCA is used most frequently. The second case study shares some broadly similar organisational characteristics with the first case study but the VOCA is used less frequently. This second case also displays some elements of conversational organisation that are utilised more extensively in the final case. In the final case the VOCA is used infrequently.

The first of the analysis chapters, chapter five, examines the conversation between a young person with Cerebral Palsy referred to as Jamal and his classmate Colin. For Jamal the VOCA is his preferred mode of interaction. This conversation is organised primarily around the recurring realisation of adjacency pairs produced most commonly as questions and answers. Colin and Jamal both take the role of questioner, but it is evident that Colin explicitly prompts Jamal's production of questions. While operating within adjacency pair exchanges, VOCA use progresses unproblematically and misunderstandings or confusions in VOCA use are resolved

without significant difficulty. Where Jamal seeks to initiate new talk away from the adjacency pair exchange more significant problems arise.

Chapter six looks at the interaction between two girls who are referred to as Tina, who has Cerebral Palsy, and Lucy. This dyad shares some broad based organisational practices in the use of questions and answers observed in the conversation between Jamal and Colin. Tina uses her VOCA to answer questions and to initiate turns at talk. It is apparent, however, that only limited sequential opportunities are available for Tina to initiate VOCA turns and, like Jamal, the production of such turns can encounter significant difficulties. In this conversation the balance between Tina's VOCA use and the use of non-verbal actions shifts in favour of the latter. A significant characteristic of this conversation is the realisation of extended sequences in which Lucy asks questions or provides possible answers to a prior question in the pursuit of a target or targets. It is evident that while the majority of Tina's contributions to this talk are minimal non-verbal actions in affirmation or rejection of Lucy's questions and candidates answers, she also displays an ability to signal more subtle possibilities of meaning non-verbally and Lucy shows sensitivity to the possibilities initiated by such actions. Lucy is also seen to build on Tina's non-verbal actions to imbue the conversation with humour and portray Tina as a competent individual. In presenting this interaction next, the thesis aims to support the reader in orientating to its similarities with Jamal and Colin's conversation while emphasising the unique accomplishment of features within each dyad, and how the interaction shares some features of organisational practice with the third and final case study.

Chapter seven presents an analysis of the final dyad, which is a conversation between a young person with Cerebral Palsy known as Martin and his classmate David. Although some common features in interaction are observed between this interaction and the others, in many respects this conversation provides some unique insights into the role of the speaking partner and the VOCA's contribution to the interaction. Martin uses his VOCA minimally during the conversation and David is seen to prompt each episode of its use. When Martin does use his device he is observed to generate incomplete utterances deliberately and on some occasions combine these with non-verbal actions to evoke a rich seam of risqué humour that

runs throughout the conversation. Martin's primary modes of contribution to the conversation are unintelligible vocalisations and non-verbal actions. Martin displays his understanding and appreciation of David's talk through the skilled placement of vocalisation and non-verbal actions with respect to David's prior turn and the turn in progress. Interestingly, David is seen to treat Martin's actions as meaningful, and as evoking rather salacious aspects of the talk or as questions that place him in a superficially embarrassing or awkward position. David demonstrates a particular sensitivity to Martin's actions and in treating them with rich meaning he orientates to Martin as a competent co-participant.

It is the nature of CA that the data analysis and presentation of findings are indivisible. Consequently, the central thrust of this work and the primary location of its findings are found within these three case studies. The final chapter, chapter eight, aims to draw together and summarise broad themes identified across the three case studies. This chapter also considers the implications of this work for the clinical practice of Speech and Language Therapists working with school-aged children using VOCAs and reviews methodological issues raised in the work.

Chapter 2

2.0 Introduction

This chapter will describe briefly the population of non-speaking children with Cerebral Palsy who are central to this work, and introduce the field of Augmentative and Alternative Communication (AAC), of which the provision of voice output communication aids (VOCAs) is a significant part. Research concerned with social interaction of children using communication aids will be examined, and aspects of Speech and Language Therapy intervention with children who use communication aids will be described.

2.1 Non-speaking children with Cerebral Palsy

Cerebral Palsy is described commonly in terms of the distribution of limb involvement and neurological features of muscle tone and movement. For example, a child presenting with motor difficulties in all four limbs and with increased muscle tone will be classified as a child with four-limb spastic cerebral palsy. In addition to the wide ranging manifestations of Cerebral Palsy children often experience multiple complex needs including feeding and swallowing problems, epilepsy, sensory impairments, learning difficulties and speech, language and communication difficulties.

A proportion of children with Cerebral Palsy experience significant degrees of dysarthria - a neuropathological paralysis, weakness or incoordination of speech musculature (Darley, Aronson & Brown, 1975). Dysarthria is classified in terms of neuroanatomical site of lesion and acoustic/perceptual judgments. However, clinical evaluation of oro-motor function tends to focus on anatomical structure and oro-motor function (Brindley, Cave, Crane, Lees & Moffat, 1996). Dysarthria impacts directly on speech intelligibility. Again a range of severity is evident. For instance, children with mild motor involvement may experience only limited difficulty

generating accurate and consistent articulatory patterns, generating speech that is intelligible to unfamiliar listeners. Conversely, children with more involved motor impairments of oro-musculature will have significant difficulties producing vocalisations beyond vowels. Speakers' intelligibility incorporates intrinsic characteristics of the speech signal (articulation, respiration, phonation) as well as extrinsic variables, including the conditions in which the message is delivered and the communicative task (Kent, Miolo & Bloedel, 1994), listener familiarity, and utterance content (Beukelman, Yorkston & Dowden, 1985). As such, intelligibility is understood to vary according to changes in intrinsic and extrinsic variables.

Children with Cerebral Palsy do not represent an homogeneous group. Variation in children's difficulties with gross physical movement, limb movement, and fine motor movements, including oro-motor movements, will have an impact on the communicative resources that children bring to social interaction. The question of speech intelligibility and prognosis is one of significance to parents, carers and professionals, not least because decision-making concerning the provision of communication aids is brought about by children developing speech of poor intelligibility.

2.2 Augmentative and Alternative Communication

As they mature, a proportion of children who have speech with poor intelligibility experience a growing gap between their understanding of spoken language and their ability to express themselves. This population of children may be recommended augmentative and alternative communication (AAC) systems to support their natural communication skills.

The term AAC refers to a comprehensive range of procedures and tools which aim to support individuals' communicative resources by replacing or supporting speech and/or reading and/or writing. AAC is broadly categorised into unaided and aided communication. Unaided communication refers to non-verbal communication resources including kinesic and proxemic systems used in interaction between speaking participants, and includes formalised manual signing systems such as

British Sign Language. Aided communication describes interaction involving the use of communication aids employing pictures, graphic symbols or orthography.

Many children will be introduced to communication aids before the development of literacy, and many non-speaking children with Cerebral Palsy experience significant difficulties developing literacy. For these children communication aids will employ photographs and/or pictures and/or graphic symbols. Communication aids, whether using graphic symbols or orthography are categorised as low-tech and high-tech systems. Broadly speaking, low-tech systems are paper-based systems such as books and charts of symbols and pictures, or relatively simple devices that may be used to produce pre-recorded single messages. High-tech systems are electronic voice output communication aids (VOCAs). VOCAs may use digitised voice, recorded onto the device by an adult or friend and stored digitally, or synthesised, artificially created voice. There are many different speech output devices commercially available, each with different features and possibilities. In this study the term AAC is used to refer to the field as a whole including aided and unaided forms of communication. The term communication aid will be used to refer to low-tech and high-tech aids that have been provided to support spoken interaction. The term VOCA refers exclusively to high-tech voice output communication aids. People who use communication aids will also be referred to as aided speakers.

For children with physical disabilities access to communication aids can be indirect or direct. Indirect access to VOCAs may be achieved through any reliable and repeatable physical movement that may be used to activate one or more switches. Switches can be used to navigate through the user interface by highlighting functions available and selecting options from symbol or word arrays. Navigation through various options and the selection of vocabulary items may be conducted manually with each new activation of the switch highlighting a new option until the desired target is reached. Alternatively the device may automatically scan through various options which may be selected by switch activation. Therefore, automatic switch scanning procedures limit the number of switch activations required to access the device. Direct access to VOCAs includes strategies such as direct activation of a touch screen using a finger or knuckle, for example, or using a pointing device such as a light source.

As yet there is no statutory requirement to fund VOCAs for children. However, the value of communication aids for supporting children's participation in learning and play has been recognised. For example, the Department for Education and Skills - (DfES) funded Communication Aids Project (CAP) has made available significant financial resources to supplement English Local Education Authority (LEA) funding and school funding for the provision of equipment for children with significant communication difficulties. In an evaluation of the CAP project, children receiving communication aids, parents and professionals have reported positive outcomes following provision (Wright, Clarke, Donlon, Lister, Weatherly, Newton, Cherguit & Newton, 2004). However, research has shown also that for many children the provision of a communication aid does not necessarily equate with advances in communicative skills, interactive abilities or participation in school, and communication aids are often under-utilised (Ko, McConachie & Jolleff, 1998; McConachie, Clarke, Wood, Price & Grove, 1999).

2.3 Interaction involving children with Cerebral Palsy using communication aids

2.3.1 Interaction between children using communication aids and adults

Research exploring interaction involving children with Cerebral Palsy using communication aids has been concerned primarily with the adult - child dyad. Such research has considered interaction between parents and children and, for school-aged children, the teacher/professional-child dyad. Consequently, an appreciation of the role of naturally speaking adult communication partners in shaping the interactive experiences of children using communication aids has been a primary outcome of the research.

2.3.1.1 Asymmetries in interaction

Within the body of research concerned with interaction between children using communication aids and naturally speaking adults methods of analysis have drawn upon linguistics, and in particular developments in pragmatics and speech act theory

(Austin, 1962; Searle, 1969). Such methods have been based on an understanding of turns as the basic unit of interaction, defined in various ways but typically according to the length of gap between speakers. The communicative functions of turns and the modality of aided speakers' contributions have also formed core variables of analysis. Within this analytical trend comparison of research work is confounded somewhat by the heterogeneity of subject characteristics, differences in procedures adopted in studies and variation in definitions used for turns, functions and modalities. Nevertheless, patterns in the findings do emerge and a recurring feature of this research is the so-called "asymmetry" of participants' actions. For instance, it has been shown that adults (parents and teachers) produce more contributions to conversation, and more complex utterances in terms of the number of communicative functions within each turn than children using communication aids (Calculator & Dollaghan, 1982; Harris, 1982; Light et. al., 1985a,b; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999). They also take a high proportion of turns categorised as initiators of interaction (Harris, 1982; Light et. al., 1985a; Buzolich & Weimann, 1988; Udwin & Yule, 1991; Basil, 1992; Jolleff et. al., 1992; von Tetzchner & Martinsen, 1996; McConachie et al., 1999; Pennington & McConachie, 1999), producing a high proportion of questions, commands and requests for clarification (Harris, 1982; Light et. al., 1985a,b; Udwin & Yule, 1991; McConachie & Ciccognani, 1995; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999), and questions in which the answer is known already by both participants (Kraat, 1985; von Tetzchner & Martinsen, 1996). Conversations may also serve a particular purpose; with adults "controlling" and focusing conversational topic (Harris, 1982; Hjelmquist & Sandberg, 1996; von Tetzchner & Martinsen, 1996). This body of research has reported consistently that children using communication aids demonstrate minimal conversational control. They may appear to adopt passive roles in interaction; acting as the respondent to adults' questions, often with single word responses and employing a limited range of speech acts.

For example, early influential research by Harris (1982) examined interaction involving three children with Cerebral Palsy (aged 6:05, 6:06 and 7:05) using communication aids in three school-based contexts: free time, one-to-one instruction and small group work with a teacher and peers. The study considered four levels of analysis: conversational participant (teacher, child using communication aid and

peer), the type of turn (initiations and responses), the communication functions expressed by those events (e.g., instruction, description/statement) and the mode in which the turn is expressed (e.g., communication aid, gesture). It is notable that Harris does little to describe how levels of analysis - the turn, types of turn units such as initiation, or communicative functions - are defined. The analysis considered the relative frequencies of the variables across speakers and contexts. Principally, Harris identified that across contexts teachers contributed a greater number of turns, most frequently asking questions and giving instructions. Typically, children using communication aids took a respondents' role and communicated using head nods and shakes. An exception was noted in individual instruction where the communication aid was the most frequently used mode of interaction. Harris noted that turns conducted through communication aid use took much longer than spoken utterances. Harris concludes that the profile of interaction observed reflects the teachers' desire for increased speed of communication in small group work where aided speakers and their peers worked together. This issue of increased speed was considered less important in one-to-one exchanges with aided speakers. Harris also reported that teachers did not appear to provide sufficient time for children to answer questions using their communication aids. For instance, following an open question, teachers would interpose a number of new yes/no questions. A flavour of this feature of the interaction is provided in the original text and reproduced here:

"*Example:*

T: What did you do last night?

C: (begins to formulate a response using a communication board)

T: Did you go home?

T: Did you watch TV?

T: Did you see Walt Disney?

T: Did your brother come home?" (Harris 1982:31)

Of particular interest also was the finding that children using communication aids rarely interacted with peers. Harris proposes that this may be a function of the fact that children with Cerebral Palsy are more reliant on adults, for example in mobility, daily care and communication. It is suggested that this observation may also be due to the limited communication skills of aided speakers compared with peers. Harris compares these findings with studies of non-disabled children's interaction revealing

that non-disabled children were more interactive, producing more complex utterances and interacting primarily with their peers.

A further example of such asymmetries in participant contribution have been reported in an influential series of research papers by Light, Collier and Parnes (1985a,b,c). Light and colleagues adopted a similar model and method of analysis to that outlined by Harris, in the study of interaction between seven non-speaking children with Cerebral Palsy and one child with Lesch-Nyhan syndrome, and their primary adult caregivers. This work examined "discourse patterns" in a 20-minute unstructured free play context within a clinical setting. Discourse patterns are conceptualised as the distribution of turns such as initiations and responses; communicative functions and modes of communication used in interaction. In the first of these papers the authors analyse turns on three successive levels: (1) the presence or absence of a communicative act; (2) whether or not a communicative act shares "contextual focus" with the previous communicative act, that is, related in theme or topic; and (3) the "summoning power" of the turn, described as the degree to which a turn limits the conversation partners range of responses (Blank & Franklin, 1980), that is, whether it has strong summoning power by "obliging" a particular type of next turn, such as a question, or "invites" as response, such as a comment. Turn boundaries were defined as pauses between speakers of greater than one second. The authors transcribed the interactions including aspects of non-verbal interaction such as eye-gaze and pointing. The analysis considered the distribution of frequencies of variables across partners at each level of coding. Having identified these distributions, the authors used these data to calculate the probability of one event given the occurrence of a previous event across turn pairs. These were compared with the unconditional probabilities of events across two turns.

Light and colleagues present similar findings to those reported by Harris (1982), describing the interactions as asymmetrical, for example, with adults taking more than twice the number of turns than children. Children also tended to take a turn following a prior "obliging" turn, rather than one with less "summoning power", and adults were observed to rephrase their previous turn to increase the obligation of a response. The authors contend that such action: "*illustrates the caregivers' desperate attempts to solicit a response from the children and to maintain the flow of the*

conversation" (Light et. al. 1985a:81). Also, like Harris (1982), Light and colleagues note that the children might not have had sufficient time in which to take a turn, and that this difficulty was compounded by adults' rephrasing of previous turns.

The authors highlight an increased need for caregivers to show sensitivity to the potential communicative acts conducted through children's non-verbal behaviours. Interestingly, the concern of adult responsiveness to aided speakers' actions has been reflected more generally (Calculator & Dollaghan, 1982; Basil, 1992; Pennington & McConachie, 1999). Light and colleagues suggest also that the adults may have been organising the interaction within a temporal structure that did not match the children's own conversational time parameters. As the authors state: "*The children's interactional participation was not uniformly at a slower rate but was defined by an irregular rhythm. The caregivers may have attempted to impose a rhythmic turn-passing structure by relying heavily on soliciting minimal responses which the children could encode and transmit quickly.*" (Light et. al., 1985a:82).

This research highlighted a further interesting feature of these interactions. Adults explicitly and implicitly prompted communication aid use from children using turns such as "*show me with your symbols*" (Light, 1985c:128), or by pointing to the communication device. Adults were seen to demand communication aid use when children's turns had been adequately provided through other modes. It is suggested that the children might not have used their communication aids at all if they had not been prompted to do so in these ways. Alternatively, adults failed to encourage or support communication aid use when it might be deemed the most effective way of taking an appropriate turn. The authors suggest that because the temporal structure of the interaction is variable, children would benefit from developing strategies with which they might signal the start and end of their turns, and that a fuller understanding of the "temporal structuring" of interaction involving non-speaking children is warranted.

Interestingly, in a later study of parents' interaction with children using communication aids, von Tetzchner and Martinsen (1996) allude briefly to similar patterns of adult speech in describing a father's reformation of an open question into a series of yes/no questions. This work involved a qualitative analysis of video-

recorded interaction between four children using communication aids and their parents in situations chosen by parents as representing "good communication situations". The authors propose that the father's reformation of questions was caused by his perception of communication aid vocabulary limitations, "*because the father could not expect a direct answer from Henry: the communication aid did not contain the name (a pictogram or picture) of the person in the question.*" (von Tetzchner & Martinsen, 1996:69), and the possibility that this was done to speed the progression of the conversation, particularly when the father already knew the answer to the question. The authors raise concerns for the potential impact of the asymmetrical characteristics of adult – child interaction in the limited opportunities and support such profiles of interaction provide for children's language learning and the development of competence in communication, stating: "*Many of the strategies the parents used seemed to provide immediate satisfaction in the sense that interaction was maintained. However, these strategies may have failed to sustain development of gradually more functional and complex linguistic and communicative skills.*" (von Tetzchner & Martinsen, 1996:88).

It has been hypothesised that the asymmetries observed in adult – child interaction are, in part, a consequence of adults' drive to progress conversation at a normal rate for spoken interaction. The problems that adult aided speakers face in conducting conversation within the timeframe of spoken conversation have been documented (Sweidel, 1991; Robillard, 1994; Higginbotham & Wilkins, 1999). Slowness of production may lead to frustration, confusion and misinterpretation, and the resolution of misunderstandings can lead to long and convoluted stretches of interactional work. Consequently, speaking participants may be unwilling to enter into and sustain conversational interaction (Robillard, 1994; Higginbotham & Wilkins, 1999). Furthermore, the significant time required to construct communication aid mediated messages creates difficulties in reporting on prior topics. As Albert Robillard, an adult communication aid user himself, states: *" It takes so much effort to spell out what I am saying I could not easily recycle the topic...I could only, because of time and energy, speak directly to a former topic. This speaking out of context would generate many complaints and confusion.*" (Robillard, 1994:391). Therefore styles of interaction observed may reflect participants' adaptations to the temporal urgency inherent in spoken interaction.

In addition to the broad-based asymmetries observed in participants' contributions to interaction, such research has also illuminated some interesting characteristics of adult speaking partners' actions in particular. These include the reformation or rephrasing of conversational turns to elicit children's responses and a concern for time and timing of the interaction. Aided speakers' difficulty in operating within the temporal demands of natural speakers' conversation has also been highlighted. Although similarities in the characteristics of interaction have been observed across studies, concerns have been raised about the danger of overgeneralising such findings (Kraat, 1985), and the heterogeneity of the population of children with Cerebral Palsy using communication aids suggest the likelihood of variation in the characteristics of interaction between participants.

2.3.1.2 Variation in participants' interaction style

It is suggested that the specific characteristics of interaction reflect partner variables (Kraat, 1985; Farrier, Yorkston, Marrinier & Beukelman, 1985; Higginbotham, Mathy-Laikko & Yoder, 1988; Light, 1988; Linell & Luckmann, 1991; Jolleff et. al., 1992; Smith, 1994). For children using communication aids, research has examined differences in characteristics of interaction between aided speakers and their parents and teachers. A comparison of teachers' and parents' questioning behaviours reveals that parents tend to ask "closed questions" (categorised as obliging a yes/no response), while teachers have a propensity to ask more open questions (Basil, 1992; Jolleff et. al., 1992). For example, in an intervention study Basil (1992) compared interaction between four children with Cerebral Palsy using communication aids, aged 7 years 4 months to 8 years 8 months, and their parents and teachers before and after parent-focused intervention. Analysis considered the distribution of turns categorised as initiation and response. Initiations, sub-divided into the categories of open or yes/no questions, were defined as, "*utterances whereby the child or the adult introduces a new subject or redirects the conversation, or those which take place after a time interval of 10 seconds...without any intervening utterance*" (Basil, 1992:191). Responses were coded as one of a range of possibilities including, for example, answer to a question; following an instruction; carrying out a request or commenting on a prior turn or action or no response. Children's use of their communication aids was also examined. Three samples of interaction were taken for

each child with a parent and three with a teacher before and after the intervention. A record of communicative modes such as pointing, vocalisation or aid use was documented by an observer present at the interactions. The interaction was also audio recorded, and both sources of information used to produce a transcript of each session before and after the intervention. The intervention itself involved four family training sessions involving instruction and modelling on how to be maximally responsive to attempts by aided speakers to communicate.

Prior to the intervention the proportion of children's initiations in comparison with parents and teachers was very low in both contexts. However, teachers were observed to use more open questions than parents and a greater number of responses following up on aided speakers' prior turns. Aided speakers' actions categorised as "no response" were observed less frequently at school than at home. In addition, communication aids were used more frequently in school. Interestingly, although the characteristics of interaction might be expected to differ between parents and teachers, overall, teachers were observed to engage in interaction with aided speakers in a way that was considered more supportive to children's participation in interaction than parents. Following intervention, improvements were seen in parents' use of open questions, children's communication aid use and the proportion of children's actions categorised as "no response" decreased. However, Basil identified failings in the intervention in facilitating greater frequency of initiation by children using communication aids in interaction with parents. Basil concludes by suggesting that adult communication partners significantly influence the interaction patterns of children using communication aids and that intervention might focus on improving adult sensitivity to children's communicative actions and following up these actions with related subsequent turns.

Interaction styles of fathers and mothers with naturally speaking children are known to vary and differences have also been observed in parents' interaction with aided speakers. For example, a comparison of parents' interaction with their daughter who uses a communication aid revealed how the mother adopted a more directive "teaching" style of interaction than the father (Smith, 2003). For aided speakers the choice between the use of a communication aid and other communication modalities, such as vocalisation or gesture, may be influenced by factors internal to the

individual, such as device limitations (Smith, 1994) or the communicative function of the message (Light, 1989; Smith, 1994), for example, with "yes" and "no" being communicated most effectively through non-verbal actions. Despite the availability of communication aids, some individuals have shown a preference for unaided channels of communication (Harris 1982; Light et al., 1985b,c), and an ability to switch between communication modality may be considered an important element of aided speakers' competence in interactive exchanges (Light, 1989).

2.3.1.3 Methods of analysis

Primarily, research has been concerned with quantifying observed behaviours. Typically, recordings of interaction are transcribed and the participants' behaviours categorised according to mutually exclusive classes of behaviour. In applying this "component model" (Mathy-Laikko & Yoder, 1986) in research it has been possible to consider comparisons of frequencies of variables between aided speakers and their partners, and comparisons with norm-referenced measures of language use and interaction.

In an attempt to reflect more closely patterns of turn exchange recognised in face-to-face interaction, some researchers have used statistical methods of applied probability to model the relationship between turns (Light et al., 1985a; Buzolich & Weimann, 1988; Pennington & McConachie, 1999). Light et al. (1985a) examined the probability of categories of turns following one another over two consecutive turns. The probabilities of certain types of event occurring together identified in their data were compared with sequences of consecutive events occurring by chance. Although this approach may provide additional information concerning the clusters of linked events it is unable to identify the relevance of improbable events. That is, where a certain category of behaviour may not be a very probable next event it may be a very significant one for the participants in the context of the interaction. Its absence is the very point of significance to the participants and the analyst.

Furthermore, quantitative research methods have been criticised for relying heavily on third party observer inference in analysis (Rankin, 1981) and on overemphasising the relevance of the transfer of information between participants as an interactive goal (Higginbotham et al., 1988). For example, Light and colleagues (1985a) in their

examination of communication structures between children using communication aids and adults described the actions taken by both participants in the development of the child's aided turn as "procedural plays". Indeed, in a discussion of the use of quantitative methods in the analysis of aided interaction Higginbotham and colleagues state, "*without taking such within-message interactional behaviour into account, information necessary to understanding the adaptations ACSU* (augmentative communication system users) *and NSs* (natural speakers) *in order to have conversations is lost, resulting in an incomplete picture of the ACSU communication process*" (Higginbotham et al., 1988:277).

Essentially, quantitative methods are unable to capture the complex subtlety of interaction involving communication aids. They are unable to value interactive events below sentential level and there is an oversimplification of the notions of conversational control and power in the discussion of analyses (Higginbotham et al., 1988). Indeed, it would seem that the language of power and control in the description of conversation is widespread in the aided communication literature. Discussion of conversational control is based on an implicit assumption that an equal frequency distribution of turns relates to equal conversational control between participants, or that topic initiation equates with an indication of control. However, such language use characterises interaction as a form of conflict, as if interaction involving children using communication aids was organised or intended as a confrontation for mastery of the conversational floor rather than a collaborative accomplishment.

Research employing this methodological perspective has proved useful in describing the broad-based characteristics of interaction for this population of children and their communication partners. However, the value of such methods may be limited and in borrowing analytical perspectives used in the study of spoken participants language use, the communication deficits of children using communication aids are emphasised. These concerns are summarised effectively by Linell (1990) when he states: "*when we focus on the phenomenon of aided or augmented communication, we should not look upon the introduction of technical aids as a matter of simply* ***substituting*** *or* ***adding particular singular components*** *to communication situations. In comparison with non-augmented communication, the whole process or system,*

and the contexts will change. A ***new integrative pattern*** *will emerge, with unique properties.*" (Linell, 1990:19, author's original emphasis). A flavour of such patterns is seen in the literature concerned more closely with qualitative description of the character of message construction conducted through communication aids.

2.3.2 Aided speakers' message construction

Research concerned with the characteristics of children's message formulation using communication aids in interaction with adults has begun to identify something of its distinctive character and form, and the challenges faced by both participants in using communication aids. Typically, message production is realised as a jointly constructed action between the aided speaker and their communication partner commonly over several turns, and participants may engage in extended and elaborate sequences in which individual elements of the message are composed in turn before the full meaning of the message is shared, (Kraat, 1985; Higginbotham et al., 1988; Linell, 1990; Collins & Markova, 1995; Collins, 1996; von Tetzchner & Martinsen, 1996).

Most typically, young aided speakers are understood to use their communication aids to communicate single words rather than multiple word, phrases or sentential structures. For example, in a survey of 52 service providers supporting people using communication aids in six European countries it was estimated that, on average, only 20% of service providers' clients regularly combined four or more items in a single turn. Equally, only 20% were estimated to use some form of grammatical marker in communication aid mediated utterances (Clarke, Nicolle & Poulson, 2001). It is suggested that the predominant use of single elements is a consequence of communication aid characteristics, including limited vocabulary or inefficient access opportunities, and the characteristics of adult communication partners' communication style, making sentences "redundant" (von Tetzchner & Martinsen, 1996).

Speaking partners have been observed to use a range of strategies intended to support the production of a communication aid mediated utterance(s), for example, guessing the remainder of a word, phrase or sentence before its completion (Kraat,

1985; Brekke & von Tetzchner, 2003), and guessing at the complete intended message given one or few of its elements (von Tetzchner & Martinsen, 1996). It is possible that such strategies are a response to the time and effort invested in communication aid use and therefore that the role of speaker and listener can become indistinct (Smith, 2003). There are positive consequences for such adaptive strategies in communication aid use. For example, in the use of a low-tech communication aids in adult conversation, speaking partners have been reported to repeat each new item indicated by the aided speaker as they build an utterance (Higginbotham, 1989; Higginbotham & Wilkins, 1999). This procedure, termed a "point-speak" strategy, provides a location immediately following the speaking partner's repeat for any misunderstandings to be signalled by the aided speaker. As such the speaking partner's active involvement in the production of the turn is understood to provide a useful mechanism for reducing misunderstandings.

For some children, communication aids may be used strategically to bring about forms of interaction that are unlike styles of interaction observed in normally speaking children. For instance, it is reported that aided speakers may use their communication aids to produce limited or simple utterances as a way of prompting adults into talking more expansively on the topic introduced by the communication aid (von Tetzchner & Martinsen, 1996), or where the topic is introduced by the aided speaker through their communication aid and the subsequent comment developed collaboratively between participants (Smith, 2003). Although these strategies are unlike the practices of interaction between adults and children in speaking dyads, they may represent normal and effective ways of conducting aided interaction with a familiar adult. Indeed, it is inappropriate perhaps to assume that children provided with graphic symbol-based communication aids will develop expressive language in the same way as their speaking peers, or that assessment of aided speakers' language use should be based on spoken language models (Sutton, 1999; Soto, 1999; Smith & Grove, 1999).

The adult - child dyad has been the major focus of research attention and a common trend in participants' interaction style is observed across studies. Adults typically take a governing role in interaction with children reported to participate passively. It is notable also that variation in the characteristics of interaction are evident between

different communication partners. Furthermore, the way in which participants use communication aids in interaction involves significant collaboration between communication partners. The next section will examine research concerned with peer interaction for children using communication aids.

2.3.3 Research concerned with peer interaction

Research concerned with peer interaction involving children with disabilities has tended to focus on interaction by pre-school and young children with learning and developmental disabilities (Guralnick, 1986; Strain & Odom, 1986; Guralnick & Groom, 1987; Guralnick, 1990). Children with developmental disabilities demonstrate difficulties in peer relationships beyond that which would be expected from the basis of their developmental level (Guralnick, 1990) often experiencing negative social relationships as indicated by rejected or isolated social status (Beck & Dennis, 1996; Gorenflo & Gorenflo, 1991). The situation is likely to be exaggerated for children with communication difficulties. Where children using communication aids are likely to be disadvantaged in interacting with their peers, this will have implications for social inclusion and the development of peer relationships. Despite a recognition that the characteristics of interaction are influenced by communication partners (Kraat, 1985; Farrier et al., 1985; Higginbotham et al., 1988; Light, 1988; Linell & Luckmann, 1991; Jolleff et al., 1992; Smith, 1994), and recognition of the value of children's peer relationships for children with special needs (Strain & Odom, 1986), relatively little work has concerned interaction between children using communication aids and their peers. Peer-related interactions are an important and perhaps overlooked area of intervention for Speech and Language Therapists and other professionals supporting children using communication aids. A paucity of research in this area has implications for assessment and intervention practice.

2.3.3.1 Characteristics of peer interaction

Although this is a largely under-represented area of research some work has been carried out. For example, as part of a study of Speech and Language Therapy provision to 23 children provided with communication aids, McConachie and

colleagues conducted an observation study of aided speakers' interaction with adults and peers in school (McConachie et al., 1999). Children were observed on five occasions spread out through the school year, and on each occasion a child was observed for a total of 66 minutes during the school day: 30 minutes of structured lesson time (e.g. maths, history), 12 minutes of less structured lesson time (e.g. art), 12 minutes of playground or corridor time, and 12 minutes of self-care activities such as dinner time. One category of observation was the initiator of a communication sequence: adult, another child, aided speaker to adult or aided speaker to another child. The findings revealed that adults initiated the majority of communication sequences. Aided speakers tended to initiate communicative interaction with adults rather than their peers. Indeed, very little communication was observed between communication aid users and their peers. These findings corroborate earlier research conducted by Harris (1982).

The interaction patterns of a subgroup of 12 of these children in peer dyads have been examined (Clarke & Leech, 2003). Video-recorded interactions were transcribed in their entirety noting verbal and nonverbal communicative behaviours. Six minutes of each dyad were coded according to categories of interactional move, communicative function and mode of communication. The coding scheme of analysis used in this study was a replication of coding performed by Pennington and McConachie (1999), with adaptations influenced by the work of Light, Collier and Parnes (1985 a,b,c). In this scheme, turn boundaries were defined by the presence of a two-second gap supported by the presence of other behaviours including: falling terminal pitch movement; non-verbal signals such as sustained eye contact; the listener taking a turn; the aided speaker coming to rest. A two-second gap did not signal a possible turn boundary if the child using a communication aid was engaged in locating items on their system. Moves were defined as: initiation, response, response/initiation, follow-up, follow-up/initiation and no response. Communicative functions included, for example, acts such as request for joint attention, request for information and provision of information. Frequencies of variables were compared between communication partners within dyads and across the group.

The authors reported that, most often, the naturally speaking peers were initiators of interaction sequences, commonly making requestive moves. Aided speakers

produced significantly more response moves than their peers. Typically, such responses were realised as single function moves of confirmation or denial. Communication aids were used infrequently. A representative pattern of interaction observed in these data involved peers asking questions, often yes/no questions, and aided speakers responding non-verbally with confirmation or denial, such as a head nod or shake. Where the patterns of conversation mirror observations of adult - child interaction, it is possible that this style of interaction may emerge as a consequence of both partners' adaptations to the challenge of making conversation where one partner has a communication difficulty, rather than a function of pre-determined roles. Interestingly, considerable variation in the characteristics of interaction were observed across the sample. In a number of the interactions the children engaged in extended periods of laughter and game play (e.g., one partner singing and the other laughing or tickling games). Such features have not been reported in the adult - child literature, in part perhaps because they may not have been the researchers' concern, or that in the case of teacher - child interaction such interaction would not necessarily be evident or indeed appropriate. The authors suggest that despite significant communication difficulties the relatively high proportion of these types of observed behaviours highlights that peer interactions may incorporate expressions of humour and intimacy, and that some children with physical disabilities are able to take advantage of more informal forms of interaction in the pursuit of positive interactions with their classmates.

2.3.3.2 Intervention studies

Other research work concerned with peer interaction has tended to be intervention based. For example, in an individual case intervention study Buzolich and Lunger (1995) examined three video-recorded interactions, each of of 10 minutes, between a 12-year-old aided speaker with Cerebral Palsy and three naturally speaking peers, before and after intervention, (six recordings in total). The intervention aimed to teach the aided speaker the use of "regulatory phrases" to direct the communication partner to specific issues concerning the child's positioning (e.g., "can you sit next to me here"), topic initiation (e.g., "do you know what?"), communication breakdown, (e.g., "did you understand that?"), communication aid use (e.g., "please predict as I spell") and providing more information when a yes/no question has been asked (e.g., "no I didn't, what did you do?"). The data were examined for evidence of the

distribution of conversational control and communicative competence of participants. Measures of communicative control were taken through interviews with participants and communicative competence was determined by frequency measures of topic initiation; communication breakdowns/repairs, and turn exchanges. Topic initiation was defined as any act that overtly shifts the acknowledged current topic to a new one. Breakdowns/repairs were classified as attempts to clarify unclear messages. Turn exchange was analysed for the type of peer turn used (e.g., yes/no questions, open questions) and the aided speaker's response (e.g., yes/no response, communication aid mediated response). The style of interaction observed varied between participants. The authors reported that during intervention the aided speaker showed an increase in the frequency of topic initiators, more frequent use of extended answers to yes/no questions and the interaction was characterised by fewer breakdowns. Significantly, however, the aided speaker did not use any regulatory phrases before or after intervention. The authors propose that intervention concerned with increasing aided speakers' awareness of common interaction patterns is a valuable aim of intervention and the strategies introduced should be matched to the aided speaker's individual preferences and priorities. They suggest that the aided speaker in this study prioritised peer interaction above other interactions regardless of the distribution of conversational control. This work suggests that children using communication aids in conversation with their peers might perceive and approach such interactions very differently from adult perspective concerns for control and equilibrium in interactional practices.

Training in the use of graphic symbol-based communication books for social interaction with peers has been used with young children and adolescents with severe language and learning difficulties (Hunt, Alwell & Goetz, 1988; Hunt, Alwell, Goetz & Sailor, 1990; Hunt, Alwell & Goetz, 1991a; Hunt, Alwell & Goetz, 1991b). Although positive outcomes from training were observed in increasing communicative behaviour the generalisation of skills to new partners was absent and required explicit training of non-disabled peers. Intervention has also targeted training of non-disabled peers in classroom settings (Carter & Maxwell, 1998). In this instance the frequency of interaction directed towards the aided speaker was reported to have increased following intervention. However, as the authors acknowledge, the outcome measure was fairly limited and anecdotal evidence

collected during the study suggested that the quality of interaction was significantly limited.

Research has highlighted some intriguing insights into the distinctiveness of children's peer interactions compared with adult - child interaction such as the use of humour and game play. Mixed success in supporting peer interactions has been reported. It is possible that children's expectations and desires for interaction with their peers do not match adults' perceptions about what might be most helpful in support. For many professionals in the UK, in particular Speech and Language Therapists, the central purpose of such research lies in the insights it provides for shaping assessment and intervention practices, and it is to this concern that the review now turns.

2.4 Assessment and intervention

2.4.1 Assessment

2.4.1.1 Formal assessment

For Speech and Language Therapists, a central aspect of assessment with children using communication aids concerns traditional measures of receptive and expressive language abilities and the social use of language employing published and informal procedures. In the assessment of receptive language published materials are used such as: Test for Reception of Grammar (Bishop, 2003), British Picture Vocabulary Test (Dunn, Wetton & Burley, 1997), CELF – R (Semel, Wiig & Secord, 1987) and the Derbyshire Language Scheme (Knowles & Masidlover, 1982). For some children, their physical difficulties may make consistent and understandable responses difficult, and it is recognised that children's 'performance' can also be affected by factors such as epilepsy control, general health, hearing, vision, posture control and issues concerned with physical access to communication aids (Jones, Jolleff, McConachie & Wisebeach, 1991; Clarke, Price & Jolleff, 2001).

Typically, assessment of expressive communication skills combines the use of some standardised assessments, such as the Action Picture Test (Renfrew, 1997), as repeatable measures and informal assessment and observation. Speech and Language

Therapists may also aim to document an accurate baseline of observed communication modes, such as symbol use, speech, vocalisation and gesture across different settings and in different communicative contexts.

Children with Cerebral Palsy are not representative of the population as a whole and considerable variability exists within groups despite an apparently unifying diagnosis. Analysis of children's performance on published assessments necessarily departs from the published procedures, and more generally the value of norm-referenced measures based on a developmental model of language acquisition has been questioned (Kraat, 1985; Light, 1988; Beukelman, 1988; Gerber & Kraat, 1992).

The adoption of a developmental perspective in assessment and intervention might be valid in some instances such as early stages of language acquisition for very young children with physical disabilities and cognitive and receptive language abilities considered commensurate with non-disabled children. The application of such models becomes increasingly questionable when applied to older children and children with more uneven profiles of cognitive and receptive language ability typical of the population of children with Cerebral Palsy (Gerber & Kraat, 1992). However, Speech and Language Therapists lack alternative theoretical models of language acquisition to support guidelines for decision making in assessment and intervention with these children (von Tetzchner, Grove, Loncke, Barnett, Woll & Clibbens, 1996).

2.4.1.2 Functional communication and communicative competence

For Speech and Language Therapists working with school-aged children the influence of models of communicative competence has shifted attention away from assessments conducted in controlled environments and concerns for the development of linguistic abilities. Rather, concerns for functional communication and the impact of communicative context and communication partners on interaction methods have been emphasised (Mathy-Laikko & Yoder, 1986). Within the AAC field assessment and intervention practice has been influenced by a model of communicative competence proposed by Janice Light (1989).

Light (1989) conceptualises communicative competence as a dynamic, interpersonal construct that is concerned with the functionality and adequacy of communication and sufficient knowledge, skills and judgment in four areas: linguistic skills, operational skills, social skills and strategic skills. Drawing on research in the fields of language acquisition, AAC, rehabilitation and second language learning, Light defines communicative competence as: "*a quality or state of being **functionally adequate** in daily communication, or of having sufficient **knowledge, judgement, and skill** to communicate.*" (Light, 1989:138 author's original emphasis). Essentially, functional communication concerns the communicative demands encountered in everyday life natural environments. It is proposed therefore that clinical assessment and outcome measurement should be based on children's performance in interaction in response to everyday challenges in natural settings rather than performance testing in controlled environments. In the concept of adequacy of communication Light proposes that mastery of linguistic ability may not be a desirable or achievable goal. Rather, a more appropriate goal of intervention might be to support aided speakers in developing adequate skills and knowledge to meet daily communicative demands, and that recognition should be made of the fact that communication competence will be context and partner specific.

Consequently, Light suggests that communicative competence may be approached by developing knowledge, judgment and skill in the areas of linguistic, operational, social and strategic competence. Linguistic competency involves "*adequate mastery of the linguistic code*" (Light, 1989:139) and includes the language of the spoken community and the conceptual foundation of their communication aid system, for example, learning the meanings of pictures and how they may be combined. Linguistic competence recognises that aided speakers are required to function with different forms of language modality for receptive and expressive communication (von Tetzchner et al., 1996; Wool & Barnett, 1998). Operational competence refers to technical skills required to operate the communication system, for example, learning the layout of symbols and how to access the device effectively. Light defines social competence as knowledge and skills in social discourse strategies such as knowing when and how to initiate interaction and how to communicate a full range of communicative functions. Finally, strategic competence refers to developing skills to communicate effectively beyond the limits of competence in

communication aid use. This will include strategies of adaptation and compensation to overcome limitations imposed by linguistic, operational and social competencies. Light suggests that examples of such strategies include asking the communication partner to guess what they might be trying to communicate through limited or indirect use of symbols or pictures. The relevance of adaptive strategies for people using communication aids has been highlighted more generally (Kraat, 1986) and Light suggests that research is required to identify such strategies and establish their impact and significance.

Light's conceptualisation of communicative competence as a dynamic interpersonal construct reflects work concerned with children's social competence more generally (James & Prout, 1990; Hutchby & Moran-Ellis, 1998). However, a critical task for Speech and Language Therapists is to understand how such areas of competence are relevant to children in their real-life everyday interactions. As Hutchby and Moran-Ellis state in their discussion of non-disabled children's social competence: "*In short, empirical work needs...to establish the ways in which children display, can be required to display, and are policed in their displays of social competence.*" (Hutchby & Moran-Ellis, 1998:15, author's original emphasis).

Some approaches to the functional assessment of client communication needs (Beukelman et al., 1985) have been criticised for focusing on the detail of the type of communication message that might be required in a particular situation, rather than considering aspects of an individual's communication agenda more broadly (Light, 1988). In part, assessment might try to seek a fuller understanding of what it is that communication aid users themselves wish to accomplish in interaction (Kraat, 1985). In support of such intervention planning Light (1988) proposes four functions or rationales that are served by communication: communication of wants or needs; information transfer; social closeness and social etiquette. It is possible that for aided speakers in peer interaction the primary communicative agenda might be the development and maintenance of social relationships, in Light's terms, "social closeness".

It is proposed therefore that assessment and intervention for many non-speaking children with Cerebral Palsy using communication aids and children with learning

and communication difficulties more generally, may be best placed in targeting adequate functional communication skills, that is, sufficient communicative ability to meet the demands of everyday life experience, and that this is achieved best within natural interactive experiences (Calculator, 1988; Light, 1988; Light, 1989; Calculator, 1991; Beukelman & Mirenda, 1992; Johnson, Baumbart, Helmsteter & Cury, 1996). Such natural context-based assessment and intervention approaches are understood to possess strong ecological validity, as Speech and Language Therapists are able to recognise functional needs within interaction and observed difficulties in generalisation of skills across school contexts supports the value of working within natural settings such as classrooms (Schwartz, 1987). Furthermore, the emergence of pragmatics as a specific linguistic domain and the publication of models for specific pragmatic assessment and clinical intervention (Prutting & Kirchner, 1983; Schulman, 1985; McConachie & Ciccognani, 1995) have supported Speech and Language Therapists in putting theory into practice.

2.4.1.3 The National Curriculum

Changing educational practice has placed emphasis on the inclusion of children with special needs into mainstream schooling. Often assessment and intervention is shaped by educational needs and guided by curriculum requirements. Part of children's communication needs will be for them to access the National Curriculum (www.nc.uk.net). It is notable also that in seeking to foster collaborative working practices with classroom staff, the National Curriculum may serve as a common and frequently used resource for Speech and Language Therapists and education staff in assessment and intervention. Consequently, it is possible that for therapists working in mainstream settings greater focus has been placed on the need for communication skills and systems which provide children with the means to meet curriculum demands. Indeed, school staff may employ communication aids as curriculum-focused learning tools and as a means of producing 'correct' speech, or to display learning outcomes, rather than as a means of supporting functional communication (Smith, 1991; von Tetzchner & Martinsen, 2000).

2.4.1.4 Identifying functional needs

For Speech and Language Therapists who are working to design and implement assessment practices that support children's communicative competence through the development of adequate and functional communication skills there remains an underlying question about how functional needs are identified. Within the field of aided communication, assessment of functional communication skills in school contexts has been influenced by research demonstrating asymmetrical patterns in interaction between children using communication aids and adults (see section 2.3, page 18). Consequently, observation of interaction has been based largely on categories of behaviour such as turn type (e.g., initiation and response), communicative functions (e.g., provision of information, request for information) and modality (e.g., symbol use, speech, vocalisation, gesture, signing). However, this perspective tends to highlight children's communication deficits and may have limited value in identifying functional needs.

A collaborative problem-solving approach to intervention has been proposed as an alternative means of identifying and developing children's competencies (Bjorck-Akesson, Granlund & Olsson, 1996). The focus of the problem-solving approach is based on identifying and enhancing already existing competences and desired communicative outcomes as identified by the aided speakers, their parents and professionals who support them. In this way the problem-solving approach seeks out current real-life problems that may be distributed across multiple participants, environments and communicative contexts. Problems are described, explanations are sought for their occurrence and priorities and goals are set. This approach is concerned with empowering children, parents and professionals by providing improved control of intervention aims and processes. It provides a thought-provoking alternative to the assessment of communication problems based solely on professional judgment and child testing. However, clinical experience suggests that this style of assessment and intervention is not commonplace.

2.4.2 Intervention

A further important issue for Speech and Language Therapists supporting children using communication aids concerns how they can work effectively in functional contexts. Where Speech and Language Therapists might lack established frameworks for working in such settings it is possible that energies have been directed to the support and development of interaction skills within group activities, that is, replicating natural environments through classroom group-based activities (Clarke & Price, 1998). Interestingly, however, it should be noted that although speech and language therapy in the field of aided communication may wish to prioritise the teaching of functional communication, and that one potential route to this aim is through the organisation of group work, interviews conducted with children and young people using communication aids identified a strong preference for one-to-one therapy taking place outside the classroom (Clarke, McConachie, Price & Wood, 2001).

Intervention has also focused on training significant adults in strategies understood to facilitate communication with children using communication aids, and examining the opportunity barriers presented by children's everyday environments. For example, such work has supported adults in providing greater communicative opportunities for children and in being more accepting of communication involving multiple communicative modes (Culp & Carlisle, 1988; Pennington, Jolleff, McConachie, Wisbeach & Price, 1993). Intervention has also targeted children's communication skills including teaching children how to initiate conversation and improve the range and use of communicative functions (Glennen & Calculator, 1985; Angelo & Goldstein, 1990).

Some intervention has targeted children's interaction with their peers (see section 2.3.3, page 30). Such work has focused on working with children using communication aids individually to develop communication skills, again targeting features such as initiating conversation and using a range of communicative functions (Hunt et al., 1988; Hunt et al., 1990; Hunt et al., 1991b; Buzolich, King & Baroody, 1991; Buzolich & Lunger, 1995), or educating peers about characteristics and difficulties of communication without speech and effective use of

communication aids (Carter & Maxwell, 1998). Alternatively, some work has explored ways of working with children using communication aids and their peers together (Clarke & Price, 2001). For example, based largely on the body of literature examining interaction involving aided speakers, interview studies with children using communication aids and adults, and clinical experience, Clarke and Price (2001) developed a resource for Speech and Language Therapists aimed at supporting children's peer interaction through games and activities that explored aided speakers' and their peers' expectations and attitudes towards disability; development of skills and strategies in interaction and knowledge of communication aids.

Speech and Language Therapists will benefit from improved knowledge and guidance in assessing adequate and functional communication skills and in working with children using communication aids and their communication partners, particularly peers, in natural settings. At present there is a risk that Speech and Language Therapists may engage in providing solutions without knowing the nature of the problems they might address most effectively.

2.5 Summary

For non-speaking children with Cerebral Palsy the focus of research concerned with social interaction has been the adult - child dyad. Such work has adapted research methods from the analysis of interaction involving non-disabled children. Consequently, profiles of discourse styles have highlighted aided speakers' communication deficits and adults' "dominant" roles in interaction. However, it is possible that such methods fail to illuminate the unique and active ways in which children using communication aids and their partners collaborate in interaction. Furthermore, for children in school, developing peer relationships provides an increasingly important site for social interaction. However, relatively little work has concerned interaction between non-speaking children with Cerebral Palsy using communication aids and their peers. As an analytically motivated research project this thesis will add new knowledge to the field by examining in detail interaction between non-speaking children with Cerebral Palsy using communication aids and

their peers. Intervention practice emphasises the value of supporting the development of children's functional and adequate communication skills. It would seem that this is particularly relevant to the context of children's peer interaction. Speech and Language Therapists would benefit from knowledge and guidance in assessing and developing functional and adequate communication.

As Higginbotham and colleagues state: "*Past research in this area has shown that examination of ACSU/NS* (augmentative communication system users/natural speakers) *conversation has answered some questions but whole new sets of unanswered questions have been created. Although hardware technology in this field has progressed greatly, we have barely scratched the surface in our understanding of how augmentative communication systems are or can be used for conducting conversations. Without such information, myths may be perpetrated rather than realities of what augmentative communication systems have really done or can do to improve the quality of life for non-speaking individuals.*" (Higginbotham et. al., 1988: 291).

This thesis will also apply new methodological practices to the field. In using the principles and practices of Conversation Analysis in the study of interaction this research aims to overcome drawbacks intrinsic to deficit-focused, quantitative methods in analysis. It will also provide new insights into assessment and intervention, including examining the nature of adequate and functional communication in the context of peer interaction. Indeed, in many respects the analysis itself represents a form of clinical assessment of children's peer-related communication strengths and needs.

Chapter 3

3.0 Conversation Analysis

This section aims to outline Conversation Analysis (CA) and includes a brief description of its emergence as an academic discipline, discussion of its principles and practices and a description of concepts and findings relevant to this thesis. This chapter is not intended as a comprehensive review of the subject area. For this the reader is directed to the core texts from which this review is drawn. In addition to the literature discussed in this chapter some relevant research is highlighted within the three chapters of analysis. In this way it is intended that research findings are understood within in the specific context of relevant issues discussed in the analysis.

3.1 Background

The distinct perspective of CA is rooted in the work of the late American sociologist Harvey Sacks, who himself was influenced by the work of the sociologists Erving Goffman and Harold Garfinkel, although it is the branch of sociology known as ethnomethodology, pioneered by Garfinkel, that was of greatest influence.

Briefly, a central feature of Goffman's work that is relevant to the origins of CA was his early ideas about social interaction that broke from mainstream sociological thinking of the time. Goffman contended that rather than representing a disordered or trivial area of social functioning, mundane social interaction was a domain of social order that could and should be the subject of sustained methodological analysis. Importantly, Goffman proposed that such order was structured through participants' turns at talk (Goffman, 1964; Goffman, 1983). Primarily, then, Goffman's influence on the emergence of CA was his conviction that face-to-face interaction was not chaotic or unordered but orientated to a set of behavioural regularities.

Garfinkel's work in sociology also broke from the prevailing view of the time that social order was created by members' internalisation of social norms (Parsons, 1937). In contrast Garfinkel proposed that rather than individuals following internalised social rules in their encounters with others, that social order was accomplished by participants' utilisation of social practices that could be adapted to the moment-by-moment requirements and demands of the interaction, and that the methods used in everyday social interaction were a valid site of research (Garfinkel, 1967; Heritage, 1984b).

As an approach to the analysis of human interaction CA's primary interest is in identifying and describing the structures and procedures with which participants themselves achieve order in interaction (Heritage, 1984b; Schegloff, 1987a; Psathas, 1995; Hutchby & Wooffitt, 1998; ten Have, 1999). It is an empirical and inductive procedure concerned fundamentally with identifying participants' own organisational practices in the accomplishment of interaction. Furthermore, CA is concerned with analysing naturally occurring interaction rather than interaction in artificially constrained or manipulated contexts (Schegloff, 1987a). The procedure operates from a standpoint that views interaction as orderly and that it is accomplished collaboratively through the realisation of sequences of turns.

Importantly, CA examines interaction by making recourse to the way in which the participants themselves respond to one another's actions in interaction rather than through the application of categorical taxonomies or analysts' a priori supposition. So, rather than viewing the question of how interaction is organised as a problem for the analyst, CA understands this issue to be a problem primarily for the participants in interaction themselves (Schegloff & Sacks, 1973). The analysis then may describe interaction by observing how the participants display to each other what it is that they are doing and which aspects of participants' behaviour are relevant to the interaction. At the core of this method is an understanding that in following on from a prior speaker the current speaker displays how he or she interprets the previous speaker's turn. This, then, is the irrefutable public evidence for the analyst in recognising and describing relevant components of interactional behaviour. This practice has been termed the "next turn proof procedure" (Hutchby & Wooffitt, 1998), and provides an intrinsic validity to the claims made by CA.

Interestingly, then, CA has emerged from the work of Sociologists and is rooted in the concerns of sociology rather than other disciplines such as linguistics. Indeed, its uniqueness is illustrated by the fact that current authors in the field locate CA as a discipline at the crossing point of a number of distinct disciplines including social psychology and linguistics (Hutchby & Wooffitt, 1998).

The methodology of CA has been applied and continues to be applied to an ever increasing range of communication situations and participants including, for example, legal settings (Drew, 1992), airport control rooms (Goodwin, 1996), classrooms (Mehan, 1979) and Speech and Language Therapy (Gardner, 1998). CA has also been used in the analysis of developmental and speech and language learning aspects of children's interaction with adults (Tarplee, 1996; Wootton, 1997; Corrin et al., 2001) and children's interaction with their peers (Goodwin, 1990; Lerner & Zimmerman, 2003). In addition, this methodology has been employed in the analysis of interaction involving children with communication difficulties (Wootton, 1990; Wells & Local, 1993; Tarplee & Barrow, 1999; Radford & Tarplee, 2000; Mahon, 2003). With this in mind, the expression "talk-in-interaction" has been adopted by CA as a more representative term for the breadth of work encompassed and the interest of CA research is all types of naturally occurring interaction.

The following sections describe some findings which are used as primary analytical resources in the study of talk-in-interaction.

3.2 The organisation of turn taking

In being concerned with organisational practices in the accomplishment of talk-in-interaction, CA is interested in the organisation of speaker turns in conversation as these are recognised as the primary mechanism that participants themselves orientate to in establishing interactional order. Indeed, it is contended that the nature of conversation is principally derived from the system of turn taking used in its organisation (Nofsinger, 1991). CA's method in analysis utilises two basic features of conversation: "*(1) at least, and no more than, one party speaks at a time in a*

single conversation; and (2) speaker change recurs" (Schegloff & Sacks 1973: 293). It is recognised also that turn size and turn order is not fixed; what participants say is not stipulated in advance and that, typically, turn exchange is co-ordinated so that there is minimal gap or overlap between speakers (Sacks, Schegloff & Jefferson, 1974). Turn taking procedures have been set out in a robust and deeply influential model of turn taking (Sacks et al., 1974). The model is concerned principally with recognising the types of units that constitute turns at talk and understanding how turns are distributed between participants in conversation. Although apparently simple, an appreciation of these fundamental features of conversational interaction and an understanding of the turn taking procedures provide the analyst with a set of basic tools for examining the organisation of interaction.

3.2.1 Turn construction and distribution

Sacks and colleagues (1974) contend that turns are constructed from one or more turn construction units (TCU) that take a range of forms including sentences, clauses, phrases, and single words. The organisation of unproblematic turn taking, that is, an exchange of turns with little of no inter-turn gap or overlap, is dependent on participants' recognition of TCUs, and in particular, the point of TCU completion, known as the transition relevance place (TRP). In their words: *"unit types for English include sentential, clausal, phrasal and lexical constructions. Instances of the unit-types so usable allow a projection of the unit-type under way, and what, roughly, it will take for an instance of that unit type to be completed. Unit types lacking that feature of projectability may not be usable in the same way."* (Sacks, Schegloff & Jefferson 1974: 702).

Later authors have been concerned that the original conception of the TCU and the TRP has not provided a clear basis for their recognition and that the TCU remains a rather indistinct feature of talk (Wilson, Wiemann & Zimmerman, 1984; Ford & Thompson, 1996; Auer, 1996). In attempts to satisfy such concerns the TCU may be described most effectively by appealing to one of CA's chief principles. As Hutchby and Wooffitt state: "*what a turn-construction unit consists of in any situated stretch of talk is a* ***members'*** *problem. That is, such a unit is essentially anything out of which a legitimate turn has recognisably – for the participants – been built*" (Hutchby & Wooffitt 1998: 48, authors' original emphasis). In conversation, the

TCU is generated in real-time and as such its design is vulnerable to real-time changes in light of unfolding events in the interaction (Schegloff, 1996) as participants are actively engaged in negotiating the construction and distribution of turns. It is proposed, then, that the basis for recognising a TCU is an ongoing issue for the participants in conversation.

Sacks and colleagues (1974) determine three hierarchically organised techniques by which participants determine turn distribution at the TRP. These are summarised as: (1) current speaker selects next speaker (2) next speaker self selects, and (3) current speaker continues. It is proposed that participants in talk orientate to these principles of turn organisation as a set of normative practices used to accomplish orderly turn taking so that the sequence of turns and the relative length or size of turns, in any conversation, is locally managed on a turn-by-turn basis. As a set of normative practices their absence from the interaction is noticeable and accountable. In this way the continuously developing nature of conversation and the collaborative roles of the participants in accomplishing conversation is emphasised.

Having established that one relevant feature of TCUs to participants in conversation is that they are designed such that they project their likely point of termination, it is notable that TRPs are particularly relevant sites in the organisation of interaction. Beyond the signals for TCU projectability provided by syntax, research has identified a range of additional possible signals that speakers use and co-participants monitor in order to locate the first possible and subsequent TRPs including, for example, phonetic features such as pitch, tempo and loudness (Local & Kelly, 1986; Wells & Peppe, 1996), and non-verbal resources such as eye-gaze (Goodwin, 1981). For example, the combined use of eye-gaze and syntax may be used to signal turn ending or the extension of turns beyond the first possible point of speaker exchange (Goodwin, 1979; Goodwin, 1981). Goodwin (1981) has demonstrated regularities in participants' use of eye-gaze related to their roles as speaker and listener. There is an expectation that at the start of a turn the speaker will secure the gaze of the listener. Speakers may introduce disruptions to the progression of the talk such as sound stretches or pauses in order to elicit displays of recipiency from the communication partner. Having secured the gaze of the listener the speaker may remove their gaze while speaking. Typically, on approaching, or at, the TRP of their turn the speaker

will look once more at the listener (Goodwin, 1981). Participants may also orientate to aspects of syntax, semantics and intonation of turn elements in order to project aspects of the turn in progress. For example, listeners have been seen to use such properties in intensifiers, such as "so" and "really", to identify their intended function as assessments and to align their talk with the turn in progress accordingly (Goodwin & Goodwin, 1987).

Instances of the initiation of overlapping talk, that is more than one participant talking at a time, largely represent listeners' orientation to possible points of speaker transition (Jefferson, 1983; Jefferson, 1986). In addition to this "transitional onset" Jefferson (1983) identifies two other major categories of overlapping talk that account for a significant number of their occurrence. These are: "progressional onset", where listeners orientate to disruption to the progression of the talk and "recognition onset", where listeners identify the gist of the turn before the first possible TRP and initiate a new turn based on that understanding.

Other types of listener entry into the speaker's turn have been documented including a class of phenomena collectively termed "conditional entry to the turn" (Schegloff, 2000). In such instances speaker change occurs before the turn is obviously complete. This occurs with the proviso that the new speaker maintains and continues the original action of turn in progress. For example, intra-turn silences provide opportunities for listeners to initiate talk without necessarily being implicated in overlap (Lerner, 1996). In a detailed discussion of listeners' "anticipatory completion" of co-participants turns, Lerner describes how turn entry within pauses in "opportunistic completion" of that turn is not typically treated as interruption when the new speaker's actions are seen to further the progression of the turn. Lerner proposes that not all pauses are equally open to anticipatory completion. He suggests that pauses near the start of turns are less likely to be entered in anticipatory completion because the turn so far may not have provided sufficient material with which a completion may be built.

It is regularly the case that intra-turn silences are orientated to as the source of some type of trouble. However, a particular class of intra-turn silence termed "no-trouble" silence (Lerner, 1996) has been reported within very specific interactional contexts.

Within activities such as shared list writing a silence may evolve as participants wait for the writing of the list to catch up with the spoken construction of the list. In this instance the silence is caused by the activity of constructing a written list and is "filled" by the writing. So, although the progression of the talk is halted the disruption is accounted for. Lerner provides a very specific example of co-participants' "opportunistic completion" of a list. In this instance the participants have identified in advance that the list will contain four items. A pause after the third part of the list provides an opportunity for a new speaker to complete the list with the fourth item.

It is notable also that certain grammatical units may be vulnerable to recipient entry. As such, these grammatical forms are characterised by their "permeability" (Lerner, 1996). The production of utterances termed "compound TCUs" (Lerner, 1991; Lerner, 1996), provide just such permeability. Briefly, compound TCUs are understood to include an initial component that projects more or less how the turn will unfold and the probable structure of the final element. Such TCUs include utterances produced with syntactic forms such as "if-then" or "when-then". It is at the point of the "then" component that the TCU begins to move towards completion and it is in and around this location that the listener's anticipatory completion of the TCU in progress may be initiated. This is illustrated in the following example reproduced from Lerner (1996):

Dan: when the group reconvenes in two weeks=
→ *Roger: =they're gunna issue straight jackets*

(Lerner, 1996:241).

The = sign represents a change of speaker without an intervening gap and the arrowed utterance locates Roger's anticipatory completion of Dan's turn (see transcription notation appendix 1).

It is apparent that monitoring the turn in progress for the possible point of turn completion and organising the distribution of turn between participants in talk are significant and central aspects to the organisation of orderly talk-in-interaction. Again, it is the participants' actions and orientation to each others' actions that reveal practices in the organisation of turn taking.

3.3 Sequence organisation

3.3.1 Sequential implicativeness

In addition to monitoring turns in progress for possible points of speaker transfer participants are required to monitor the turn for what interactional work it might be doing. In the words of Schegloff and Sacks (1973) *"...a pervasively relevant issue (for participants) about utterances in conversation is 'why that now' a question whose analysis may ... be relevant to finding what that is."* (Schegloff & Sacks, 1973:299). The intended action of a TCU in progress is very likely to have implications for what happens next, and more specifically, for what the addressed recipient of the TCU should do next. For example, if the current turn is designed as a question, it implicates that the recipient of the question will provide an answer next (Heritage, 1984b). Similarly, an assessment of some type projects that the relevant next activity is an agreement or disagreement. It is apparent that turns like questions and assessments are examples of conversational events that possess and exert unequivocal "*sequential implicativeness*" (Schegloff & Sacks 1973: 296) for the class of turn that should follow. The principle of the sequential implicativeness applies to talk-in-interaction generally and participants' orientation to sequential implicativeness is a further fundamental resource for negotiating orderly, mutually understandable interaction. Importantly, however, it is not the case that certain types of turns invariably follow particular types of prior turns - for example, that answers always follow questions - or that this takes place in the majority of cases. Rather the issue here is that first turns make specific types of next turns "conditionally relevant" (Schegloff, 1968). Continuing with the example of questions and answers, questions make answers conditionally relevant and the absence of an answer following a question is an accountable absence. That is, some form of account or explanation is expected for why an answer is not forthcoming.

Interestingly, the principle of sequential implicativeness is similar to the concept of "summoning power" (Blank & Franklin, 1980) described earlier in the review of Light and colleagues' research in interaction between adults and children using communication aids (see page 21). Summoning power is described as the extent to which a turn confines the conversation partners' range of responses. Turns with

strong summoning power are understood to "oblige" a particular type of next turn. Again questions are categorised in this way. Other types of turns with less summoning power are understood to "invite" certain categories of next turn. For example, comments are described as inviting rather than obliging particular types of next turn. A discussion of the shortfalls of the "component model" (Mathy-Laikko & Yoder, 1986) approach to analysing human interaction is outlined above (see section 2.3.1.3, page 26). Here it is relevant to highlight two significant issues that separate CA's concept of sequential implicativeness and its use in qualitative analysis from the concept of summoning power used within a quantitative framework. Primarily, the question of what type of next turn is summoned or due by a prior turn is a problem for the participants themselves rather than an issue for third-party observers. Furthermore, by using the concept of summoning power within a framework of quantitative analysis the absence of a turn following a first turn with strong summoning power, such as a question, cannot be examined in detail and important information concerning the organisational practices within interaction are lost.

3.2.3 Adjacency pairs and preference organisation

One very obvious aspect of the organisation of talk-in-interaction is that many types of turns are realised in pairs. Again, questions and answers are an example of such ordered pairs. Other closely paired turns of similar type include, for example, greetings which implicate returns in the second turn; complaints which make relevant excuses and so on. The early work of Sacks identified that these and other types of turns are ordered regularly as the first pair part and second pair parts of paired turns (Sacks 1995 Vol. 2 521-569). This basic two-part exchange of corresponding turns, known as an adjacency pair (Schegloff & Sacks, 1973), represents a significant and recurring feature of sequences of turns in talk-in-interaction.

In their basic, minimal two-part form, the core features of adjacency pairs include that: they are made up of two turns; first pair and second pair parts are realised consecutively; turns are taken by different speakers; first pair parts precede second pair parts; and that types of pairs are related such that first pair parts discriminate in favour of specific types of second pair parts, that is, use of a particular type of first

pair part makes relevant a second pair part from the same class of pair (Schegloff & Sacks, 1973). In practice, it is understood that "*the basic rule of adjacency pair operation is: given the recognisable production of a first pair part, on its first possible completion its speaker should stop and a next speaker should start and produce a second pair part from that pair type of which the first is recognisably a member.*" (Schegloff & Sacks, 1973: 296). Typically, therefore, turns are sequentially ordered, that is, related in various ways, so that each new turn is shaped by the sequential context projected by the prior turn and itself renews the sequential context (Heritage, 1984b). The way in which turns are constructed to display their relationship with the immediately prior turn and project a sequential implicative for what might come next is referred to as sequentiality (Heritage, 1984b; Schegloff, 1984b; Schegloff, 1988).

It has been noted that many types of turns are organised in pairs and that following a first pair part a relevant second part is due immediately next (Heritage, 1984b). However, it is evident also that second pair parts do not invariably come immediately next and that many more complex forms of sequential organisation are active in talk-in-interaction. For example, sequences of turns may be inserted into an initiated sequence (Schegloff, 1972). The following example taken from Levinson (1983) illustrates a simple insertion sequence:

A: May I have a bottle of Mich? ((Q1))
B: Are you twenty-one? ((Q2))
A: No ((A2))
B: No ((A1))
(Levinson, 1983:304)

In this example, speaker B seeks clarification of A's age before answering the question. Importantly, having generated a first pair part such as a question the relevance that an answer is due is maintained despite the insertion of other sequences of turns. Indeed, it is possible that many complex sequences of turns may be inserted between a first and the second pair part.

It is evident then that first pair parts are designed to invite particular types of second pair parts. Although alternative types of second pair part are possible, a second pair part that aligns with the activity embodied in the first pair part is termed the

"preferred" second pair part. The term "preference" is used to reflect the way in which an organisational preference exists for the realisation of turns that align with the prior, rather than as a description of a psychological state or personal inclination. A characteristic of preferred actions is that they are realised without delay and constructed or designed straightforwardly. For example, in the following extract speaker A's invitation is accepted by B.

A: Why don't you come up and see me some ⌈times
B: ⌊I would like to
(Atkinson & Drew, 1979)

Typically, turns that do not align with the inferred intent of prior turns, termed "dispreferred" actions, are characterised by a range of features such as initiation after a delay, some preface that marks their status as dispreferred such as "well", or with an explanation for why preferred next turn is not forthcoming (Atkinson & Drew, 1979; Levinson, 1983; Sacks, 1987).

3.4 Repair

It is clear from the everyday experience of language users that talk-in-interaction does not always progress smoothly. Rather, talk-in-interaction is prone permanently to repair for a range of reasons, including issues related to the speaker, the recipient(s) and their shared understanding of the talk (Schegloff, Jefferson & Sacks, 1977). Within the field of CA the organisation of repair has been the focus of significant research energies. It is notable that the term itself incorporates a broad range of interactional phenomena and that the motivations for repair are widespread. Clearly, repair concerns how participants organise interaction when some form of mistake has been made and is corrected, but it also incorporates a broader range of issues beyond the realisation of errors. For example, as noted above, speakers may introduce disruptions into their speech, such as pauses, in order to secure the recipients gaze at the start of a turn (Goodwin, 1981). The speaker therefore engages in self-initiated alterations, or repair, to their talk but in the absence of any error. So repair is understood best as a set of procedures for dealing with trouble sources but that trouble sources may not necessarily relate to errors in talk. As Schegloff, Jefferson and Sacks state, repair may be considered: "*the self-righting mechanism for*

the organisation of language use in social interaction" (Schegloff, Jefferson & Sacks, 1977:381).

Repair is a sequentially organised phenomenon and is described according to three central features: the trouble source; the initiation of the repair and its outcome (Schegloff et al., 1977). The current speaker or a co-participant may initiate repair, described respectively as self-initiated and other initiated repairs. Equally, the outcome of the repair, that is, the point at which the amendment of the trouble source is carried out, may be conducted by the current speaker or a co-participant, designated as self repair and other repair respectively. Typically, also, repair initiation and outcome take particular locations within the talk. Self-initiated repair regularly comes about within the same turn as the trouble source, and other initiated repairs typically are initiated in the turn immediately subsequent to the trouble source. A further class of repair, the "third position repair" (Schegloff, 1987b; Schegloff, 1992), is realised where one participant produces a turn at talk, the second speaker then takes a turn aligning their talk to the first turn. At that point it becomes apparent to the first speaker that the second speaker has misunderstood the first turn and the first speaker initiates a repair in the subsequent, third turn. Such third turns commonly take forms such as " No I don't mean X, I mean Y". Finally, a fourth position misunderstanding repair is possible also (Schegloff, 1992). In such instances early progression of the turns mimics the pattern observed in the third position repair. One participant produces a turn at talk; the second speaker then takes a turn aligning their talk to the first turn. Unlike third position repair the third turn is occupied by the first speaker who does not recognise the misunderstanding signalled in the second turn. Subsequently the second speaker now recognises and orientates to the misunderstanding and initiates a repair in the next, fourth, turn.

Therefore, repair may take one of six patterns: self-initiated self repair; self-initiated other repair; other-initiated self repair and other-initiated other repair (Schegloff et al., 1977) and third and fourth position repair (Schegloff, 1987b; Schegloff, 1992). However, the distribution of patterns of repair is not equal. Rather, a preference exists for the initiation and completion of repair within the same turn as the trouble source, and the least preferred permutation being the initiation and completion of the repair in the turn subsequent to the trouble source (Schegloff et al., 1977).

Having summarised several core principles and findings this chapter now outlines some ways in which non-verbal aspects of interaction have come under the scrutiny of conversation analysts before describing the application of CA to the analysis of interaction involving people with communication difficulties.

3.5 Non-verbal aspects of interaction

In seeking to reveal how talk-in-interaction is organised, CA has sought to describe and understand how participants use non-verbal actions in addition to their speech. The term non-verbal is used here to represent unspoken and non-vocal aspects of behaviour, such as gesture, facial expression and other body movements, such as turning. Within the CA field some research has examined the role of non-verbal actions in interaction, building on, and in some instances corroborating, earlier qualitative studies of non-verbal interaction (for example see Kendon, 1967; Kendon, 1990). Examples of such research include studies of hand gestures and their relationship to ongoing talk (Schegloff, 1984a; Goodwin & Goodwin, 1986; Goodwin, 2000), facial expression, head movement and eye-gaze (Goodwin, 1981; Goodwin & Goodwin, 1986) and body positioning and movement (Goodwin, 1981; Heath, 1984; Schegloff, 1998).

Some physical gestures such as head nods and head shakes are iconic in nature and intrinsically related to a specific type of meaning (Schegloff, 1984a). CA research has shown how other types of non-verbal actions take on meaning by virtue of their placement within the ongoing turn or sequence of turns and the participants shared understanding of the type of activity underway. Goodwin and Goodwin (1986) demonstrate how the placement of a sequence of non-verbal actions within a turn in progress initiates a word search and invites the co-participant's collaboration in finding the word. A detailed analysis of one such activity reveals how it can be initiated by a "self-interruption" or stalling to the spoken progression of the turn and consequently the initiation of an intra-turn silence. Within the silence the speaker drops their gaze and enacts a "thinking-face". The authors argue that such actions are characteristic of word searches and therefore such silence is brought about and

occupied by actions that the listener orientates to as meaningful. By then looking towards the recipient, and at that very moment producing a hand gesture, the speaker may signal that a subsequent entry into the turn by the recipient would be appropriate. Interestingly, the authors propose that it is the placement of the hand gesture with respect to the shifting gaze towards the recipient that allows it to be seen as enhancing the implicit invitation for assistance in the word search. Subsequently, the recipient nods at the speaker. Again, it is contended that the sequential placement of the recipient's nod makes it appear as a response to the gesture. The authors state that: "*By attending to such phenomena, the analyst, instead of being content with a verbal gloss of what the gesture seems to mean, can begin to investigate in detail how the participants themselves not only find such meaning but see how they use it as a social fact, an event that has seeable consequences for the organisation of the activity they are engaged in.*" (Goodwin & Goodwin, 1986:72).

Goodwin & Goodwin's research illustrates how aspects of the talk in progress shape the use of non-verbal actions and how, in turn, non-verbal actions structure the organisation of the interaction. This type of relationship is also observable in participants' shifting body positions within talk in interaction. An example of one such relationship is seen in participates' physical alignment or "body torque" (Schegloff, 1998). The term "body torque" is used to describe twisting of the body through the hips, trunk, shoulders, neck, head and includes turning of the eyes in their sockets. Schegloff's analysis reveals, in part, how opposing demands within interaction are revealed in participants' configurations of body torque and how the organisation of the interaction is shaped by the postural alignment of its participants. For instance, Schegloff shows how, in the context of a possible sequence completion, a participants' release of body torque in the direction of the speaker may elicit continuation of that line of talk rather than its closure. Thus body positioning may display participant's commitment to the talk in progress and impact of the organisation of the talk itself.

The final section of this chapter considers how CA has been applied to interaction involving people with communication difficulties and in particular adults using communication aids.

3.6 Conversation analysis and communication difficulties

Conversation Analysis is used increasingly to examine interaction involving adults and children with communication difficulties. For example, in the last decade interaction involving adults with aphasia has become a site of particular interest for conversation analysts (Perkins, 1995; Goodwin, 1995; Wilkinson, 1999; Goodwin, 2002; Goodwin, Goodwin & Olsher, 2002; Wilkinson, Beeke & Maxim, 2003; Beeke, Wilkinson & Maxim, 2003a; Beeke, Wilkinson & Maxim, 2003b). Research has also focused on aspects of interaction involving children with disabilities including children with autistic spectrum disorder (Wells & Local, 1993; Local & Wootton, 1995; Tarplee & Barrow, 1999; Radford & Tarplee, 2000), deaf children (Mahon, 2003) and children with Down's syndrome (Wootton, 1989; Wootton, 1990). Within the field of aided communication a recognition of CA as resource for examining interaction has been observed within conference proceedings (Mathy-Laikko & West, 1992; Clarke & Tarplee, 2000; Bloch, Clarke & Collins, 2001), as has its potential value in the design of voice output communication aids (McKinlay & Newell, 1992). Nevertheless, few published research studies are available, and these consider interaction involving adults using communication aids (Collins & Murphy, 1994; Collins & Markova, 1995; Collins, 1996; Collins et al., 1997; Collins & Markova, 1999) or adults with progressive conditions (Bloch & Wilkinson, in press).

In particular, Collins and her colleagues have examined procedures in news-telling (Collins & Murphy, 1994); how the design of aided speakers' turns and their interpretation by natural speakers present specific difficulties for constructing referents (Collins, 1996); how conversations are closed (Collins et al., 1997) and the way in which participants orientate to specific experimental tasks (Collins & Markova, 1999). Embedded with much of this work is a concern for examining the impact of unequal communication resources between aided and natural speakers and the inequalities brought about by the institutional setting in which many adult aided speakers live. Three exemplary papers are described here.

Collins, Markova and Murphy (1997) use principles and practices of CA to examine how closings are accomplished between adults using communication aids and speaking partners. This activity of social interaction is seen as potentially difficult for aided speakers to manage despite possible competence in communication aid use. Seventy-seven examples of closings were examined. The analysis of closing between adult aided speakers and peers is compared with published findings from closings in doctor – patient consultations. Doctor – patient interactions were chosen for comparison because they were understood to share some characteristics with aided speakers interactions. That is, doctor – patient interactions had been video recorded, they were task orientated and they exhibit inequality in that it is invariably the doctor who initiates the closing. In contrast with mainstream CA methodology the authors supplement the CA analysis with field notes and interview material. Findings from studies of closing in conversation between normal adult participants has revealed a three-stage sequence of closing events: (1) the closing of topic; (2) pre-closing stage where no new topical material is used, characterised by exchanges of words such as "okay" and "right" and (3) the closing exchange where closing is completed by final words such as "goodbye" (Schegloff & Sacks, 1973).

The interaction between aided speakers and their co-participants mirrored that between doctors and patients in that, like doctors, speaking participants usually initiated closings (84.6% of cases). In aided speakers interaction the initiation of closing by naturally speaking participants was either explicitly sought or stages of closing were rushed through. Explicit management of closing resulted in an extended phase of closing turns managed by the speaking partner, in which the aided speaker's agreement for the proposed course of action was sought. In this way the speaking partners are understood to show some orientation to the collaboration sought normally in closing exchanges, although this may be limited. The authors suggest that such actions reflect speaker difficulty in knowing whether or not the aided speaker was ready to close the interaction, and in particular concerns about the potential "absence of a response" from an aided speaker.

Where the aided speaker initiated closing, problems were identified where this was conducted through gesture, which depended on their accurate interpretation by the

communication partner. Where closure was initiated through communication aid use words that are typical of the final stages of closing sequences such as "goodbye" were used and the pre-stages of closing seen in conversation between speaking participants were absent. Such closings conveyed a sense of abruptness. As such aided speakers' closings were deemed to be initiated too implicitly by gesture or explicitly through the communication aid.

In a later paper Collins and Markova (1999) examine how culturally shared knowledge and situation-specific knowledge are variously employed in conversation between adults using communication aids and speaking partners. Interaction between 30 adults with Cerebral Palsy and a chosen speaking partner were examined. This work applied CA to the analysis of a task whereby the adult using a communication aid was required to describe a picture to their chosen co-participant for that person to draw. Use of this experimental situation departs from CA's emphasis on the analysis of naturally occurring interaction. However, the authors assert that a communication task can be used to elicit interactional issues relevant to the everyday experiences of people with communication disabilities, and that by placing the aided speaker in a position of possessing specific knowledge they aimed to redress the existing inequalities in communication resources between speakers and so begin to develop an understanding of how such interactions are accomplished.

Two broad classes of interaction are identified: participants that orientate to the task as a "game" and those that orientate to it as "work". The participants' orientation to the task determined how culturally shared and situation-specific knowledge were employed. The paper presents three cases that exemplify these two classes of participant orientation to the task: participants treat the task as: (a) a game, (b) as work and (c) where the interaction is characterised by a "tension" between the participants. The analysis considered the opening of the conversation, episodes of editing work done in picture drawing and the closing. In interaction (a) the speaking partner more readily orientated to the situation-specific knowledge held by the aided speaker as the primary mediating resource for the task and the interaction was managed through the collaborative realisation of this information. In contrast, interactions (b) and (c) proceeded primarily by the speaking partner offering candidate options for the picture content based on more general culturally shared

knowledge, for example, paraphrased here as "is it an indoors picture or an outdoor picture". Where the interaction proceeded through the speaking partners' assumed responsibility for identifying the picture through candidate guesses based on culturally shared knowledge, the final picture resembled the target picture least. Interestingly, the authors note that where the interaction was conducted in this way the aided speaker had little opportunity to steer the interaction beyond these assumed responsibilities.

In interaction (a) the participants were observed to take roles relevant to the task, with the aided speaker's specific knowledge as the primary focus of the interaction. In interactions (b) and (c) the speaking partner is seen to assume the role of "provider of knowledge" rather than the task-based role of "receiver of knowledge". The authors contend that in these interactions the roles made relevant by the task are in conflict with the roles assigned to the participants in their everyday interaction within the institutional setting. Interestingly, the authors suggest that in taking responsibility for organising the interaction and managing the task and employing their own knowledge base rather than drawing on the aided speaker's specific knowledge, the speaking participants in examples (b) and (c) avoid the possibility that the aided speaker may not be able to tell them about the picture.

The construction of referents by adults using communication aids in conversation with speaking partners has also come under scrutiny within the same type of drawing activity described above (Collins, 1996). In these interactions it is apparent that aided speakers recurrently used noun phrases, usually delivered as single words, as the prime mediating form of aided communication. Within the drawing task aided speakers used referring expressions in the form of noun phrases to describe objects. Rather than using prepositional phrases, noun phrases were also used to describe the location of objects. This was achieved by the sequential placement of the noun phrase within the ongoing talk. To illustrate this point a short extract from Collins (1996) is reproduced here. M is the natural speaker and D the aided speaker. The transcript notation has been adapted from the original to harmonise with the notation used throughout this thesis. The communication aid mediated utterance is presented in bold and is italicised:

At this point in the conversation M is summarising her drawing.

M: cupboard at the top ....cupboard at the bottom...the cooker with then pot...and the cup...the window
D: ((*starts operating chin switch*))
M: ...with a blind and that's it
D: ((*looks at Mary smiling*)) ***sun***
M: sun, what through the window
D: yes ((*nods*))
M: ((*starts drawing*)) draw the sun

(Collins, 1996:94)

Collins claims that in starting to operate his chin switch immediately after M says "window" D signals that the picture is not complete and by producing the noun phrase "***sun***" he is displaying a link between the two elements.

Collins reveals how participants may experience difficulty in understanding how elements of the communication aid mediated speech are related and what type of conversational activity they are doing. For example, aided speakers in her study experienced difficulties in initiating new topic and, conversely, showing that they were relating current talk to a prior talk rather than starting something new. The speaking participants not only experience difficulty identifying a referent, but also problems exist in elucidating the function intended by any referent, that is, in understanding "why" the turn was produced at that point. The aided speakers studied responded to this potential source of difficulty through the use of communicative resources such as repeated actions, gesture and entering into sequences of clue giving and guessing. Importantly, Collins demonstrated that the sequential context of aided speakers' turns could have implications for the interpretation of the referent. In this way Collins illustrates how the elaborate and interdependent relationship between adults using communication aids and speaking peers in conversation is a central feature in the accomplishment of talk.

Collins' work explores two types of "inequality" understood as relevant to the participants' everyday experience: institutional inequality and inequality provided by the limited communication resources available to adults with Cerebral Palsy. Although the methods used do on occasion depart from CA's core principles and

practices this work has revealed aspects of the complex nature of communication aid use and the impact of the speaking partner in the development of the interaction.

Interestingly, similar difficulties to those observed by Collins and colleagues have been observed in conversation between adults in which one partner has a progressive condition and uses a VOCA (Bloch & Wilkinson, in press). In analysis of conversation between a husband and wife where the wife used a VOCA, difficulty arose when the VOCA was used to initiate a topic shift. The husband experienced difficulty in understanding the relationship between elements of the VOCA mediated speech and its relationship with the prior talk. In this instance he orientated to the VOCA speech as a source of trouble. Bloch and Wilkinson contend that although the VOCA provides intelligibility to unintelligible dysarthric speech it does not necessarily provide clear "understandability" to the talk in which it is used.

In the field of adult aphasia the principles and practices of CA, and the insights they have provided, have been adapted for use as a clinical tool (Lock, Wilkinson & Bryan, 2001). Adults with aphasia and their partners are encouraged to make and observe video recordings of their own naturally occurring interaction. Professionals, such as Speech and Language Therapists support the participants in looking back over their video recordings and identifying particular issues or events that may be problematic within their own particular style of conversational interaction. CA research in the field of adult aphasia provides professionals and participants with insight into the types of difficulties that might occur in conversation but importantly, it is the issues that are specific and relevant to the participants themselves and their understanding and examination of conversation that provides the foundation for intervention.

It is apparent that using CA in the study of interaction involving adults using communication aids can provide telling insights into problems and successes that participants encounter in making conversation together. The principles and practices of CA may also provide a mechanism for clinical intervention through supporting professionals and the participants themselves in understanding how their conversations are working and therefore how they may wish to develop new ways of organising their talk.

Chapter 4

4.0 Introduction

This chapter will describe the methodology employed in this thesis. First, the participants will be described. This will include a description of the type of VOCAs used and the methods children use to access their devices. Secondly, the procedures used in data collection and analysis are discussed.

4.1 Participants

The children who participated in this study were identified originally under the auspices of a research project entitled "Evaluation of Speech & Language Therapy for Children using Communication Aids – CASTLE project" (McConachie et al., 1999). A central aim of the CASTLE project was to document the amount and type of speech and language therapy provided to children using communication aids in six London Education Authorities. Within this region a whole population survey of children using communication aids was conducted. Children were invited to participate in the CASTLE project who: had language understanding at the two-word level or above, (i.e. they demonstrated understanding of adult requests with at least two information-carrying words), had a communication aid incorporating at least 20 symbols and/or pictures and/or written words and received speech and language therapy provision based at school. Children were excluded from consideration if they had a progressive neurological condition or a communication disorder that was primarily social in character such as Autistic Spectrum Disorder. Initial searching for children meeting these criteria was done in collaboration with local Speech and Language Therapy departments, with double checking through local Child Development Team registers. Thus 23 children using communication aids were recruited to the CASTLE project (median age: 11 years 3 months, range: 3 years 9 months to 16 years 6 months).

It was from this cohort that a sample of children was identified as participants in this study. The criterion for potential inclusion in this study was that children would have

language understanding at or above a five year equivalent level. By approximately age five or cognitive age equivalent (key stage 1 in the National Curriculum) children without disabilities are understood to display an ability to adapt their talk to clarify meaning in order to reach a state of shared understanding (Brinton & Fujiki, 1989). Twelve children were identified and agreed to take part in the study (median age: 12 years 5 months, range: 7 years 7 months to 16 years 6 months). This group of children presented with a range in type of Cerebral Palsy and a variety of high-tech and low-tech communication aids.

Work within the CASTLE project identified limited frequencies of initiation of sequences of interaction by these children in school (McConachie et al., 1999). Therefore, this research aimed to bring together dyads within which the children using communication aids recognised some pre-existing relationship with their peer and a co-participant with whom they wanted to engage in conversational interaction. Consequently, the children using communication aids were asked to identify a speaking partner whom they wished to invite into the study. No steps were taken to control the choice of peer.

The three particular conversations analysed in this thesis are between children who will be known as Jamal and Colin, Tina and Lucy and Martin and David. All children's names and names that are used in their conversations have been changed to preserve participants' anonymity.

A CA perspective demands that for asymmetries in partner characteristics to be considered a relevant issue in interaction analysis must demonstrate the interactional consequences of such asymmetry by locating it within the participants' actions. Consequently, partner and contextual characteristics are not normally collected or reported beyond a basic description of the participants and the setting of the conversation. For children with Cerebral Palsy such variables might include level of language understanding, level of learning abilities and degree of speech intelligibility. In line with the principles of CA this thesis reports only those child characteristics that will aid the reader in orientating to the analysis effectively. Therefore, only a description of the physical and operational characteristics of the children's VOCAs and the children's own physical limitations are provided. Child

characteristics are summarised in table 1 and 2 followed by a description of each young person.

Table 1: Summary of VOCA user characteristics

Child	Age	Diagnosis	VOCA	Access
Jamal	7:11	Dystonic Cerebral Palsy	Delta Talker™	Infrared light pointer
Tina	14:10	Mixed Cerebral Palsy	Delta Talker™	Automatic switch scanning
Martin	10:08	Dystonic Cerebral Palsy	Liberator™	Manual switch scanning

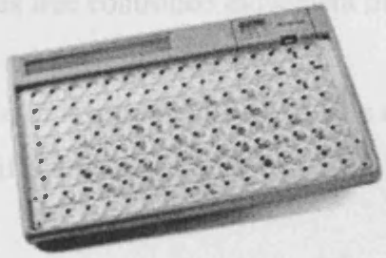
Table 2: Summary of peer characteristics

Child	Age	Diagnosis
Colin	7:05	N.A.
Lucy	14:04	4 limb Cerebral Palsy upper limbs mildly involved
David	10:06	4 limb Cerebral Palsy upper limbs mildly involved

4.1.1 Jamal and Colin

Jamal is a young person with severe dystonic Cerebral Palsy affecting all four limbs. He was 7 year and 11 months old at the time of the video recording. He has profound difficulties producing speech sounds and has been provided with a Delta Talker™, identical to the device shown in figure 1 below. The Delta Talker™ interface displays a grid of 128 cells (16 x 8) containing an icon, and a single line LED display at the top left of the device which shows the generic names of cells as they are activated and the message as it is built. By activating sequences of icons represented in the cells Jamal is able to generate letters, words or whole pre-stored phrases that the device will speak in a synthesised voice.

Figure 1: Delta Talker™



Jamal is unable to use his hands functionally. Typically, his arms are flexed and pulled in close to his torso such that his hands are held in front of his shoulders. Jamal gains access to his VOCA through an infrared light source mounted on his headband. Jamal guides the light across the icon display with small head movements. By allowing the light source to dwell on an icon he is able to activate it and a bleep is heard. In this way he is able to activate sequences of icons to build speech. His VOCA is mounted in an elevated position at the end of his wheelchair tray approximately 90cm away so that in order to access the interface Jamal is required to look forward and upwards at an angle of approximately 35-40 degrees (see figure 2).

Figure 2: Colin and Jamal

Jamal uses a supportive seating system that aims to provide pelvic and trunk stability. He is held in his chair by a belt across his waist and a body harness.

Consequently, he has restricted movement opportunities from his waist and trunk but has free controlled movement of his head and neck.

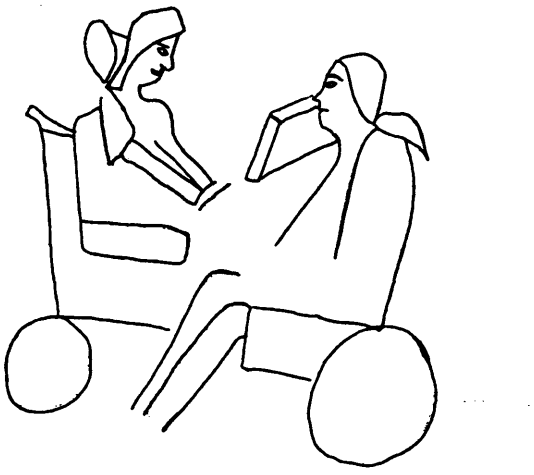
Colin is a classmate of Jamal's and has no reported physical or communication difficulties.

4.1.2 Tina and Lucy

Tina was 14 year and 10 months old at the time of the video recording. She is a young person with mixed Cerebral Palsy significantly affecting all four limbs. Tina experiences profound difficulties in generating speech sounds. Like Jamal, she has been provided with a 128 location Delta Talker™.

Tina uses a switch scanning method to operate her VOCA employing two switches mounted in the headrest of her wheelchair which she operates with the side of her head. By activating a switch she can initiate automatic row and column scanning of the icons. The VOCA starts this procedure by highlighting in turn the rows of icons on the device interface. As each new row becomes active an LED light located in each cell of that row lights up. When the row in which the target symbol is illuminated she can begin an automatic scanning procedure of each item in that row by activating the switch again. When the individual target cell is highlighted she may trigger it by hitting her head switch again. A bleep is heard each time a new row or individual cell is highlighted by the scanning procedure, or a symbol is activated. For Tina, all stages of scanning (row or individual cells in a row) will repeat three times automatically if no selection is made. So, for example, if when scanning individual items in a row no selection is made after three passes the scanning procedure will revert to scanning through each of the eight rows. If a row is not selected after three passes the procedure will stop. One consequence of this procedure is that VOCA bleeps, which indicate the movement of scanning lights on the interface may sound continually when Tina is not necessarily actively operating her device. In transcription, Tina's activation of her head switches is referred to as switching.

Figure 3: Tina and Lucy



In a natural position at rest Tina's head adopts a position of slight anterior flexion whereby her line of sight is forward and downward, approximately 45 degrees from the horizontal plane. Her communication aid is mounted in the vertical plane at the end of her wheel chair tray, approximately 80cm from her face. It is positioned such that she gazes directly at it in her resting position (see figure 3). When using her head switches she is required to extend her head position backward slightly, bringing her head up while maintaining her direction of gaze downward and forward.

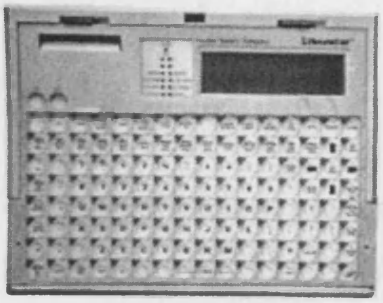
In order to maintain seated stability Tina sits in a supported seating system. Tina's arms are strapped into a fully extended position so that her hands can grasp a bar mounted on her wheelchair tray slightly in front of her communication aid. In this way Tina is supported in achieving and maintaining trunk and shoulder stability. Consequently, Tina's range of movement is limited generally to head movements although she is able to raise her bottom slightly from the seat with her upper body moving upwards through a full body extension.

Tina's communication partner is Lucy, a young person aged 14 years 10 months at time of video recording. Lucy has Cerebral Palsy affecting her lower limbs and she uses a wheelchair. Lucy has mild physical involvement in he upper limbs. She has a mild form of dysarthria but her speech is fully intelligible.

4.1.3 Martin and David

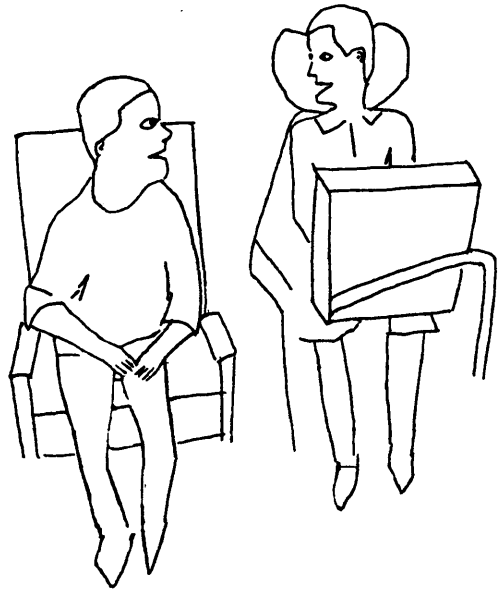
Martin is a young person with dystonic Cerebral Palsy significantly affecting all four limbs. He also has profound difficulties generating speech. Martin has been provided with 128 location Liberator™, shown below in figure 4. The Liberator utilises the same user interface as the Delta Talker™, so that it presents a grid of 128 cells (16 x 8) but with a multiple LED display at the top of the device. Martin accesses his VOCA through switches mounted in his wheelchair headrest using a manual switch access method. Each time he activates a switch using his head he is actively highlighting different icons or groups of icons on the interface and selecting icons using a second head switch. Each time he highlights or selects icons a bleep is heard, confirming the action or selection. So, unlike Tina, bleeps are heard only when he is actively operating the device. In this way Martin controls each step of the access procedure and by activating sequences of icons he is able to speak words and phrases as well as spell.

Figure 4: Liberator™.



Martin uses supportive seating and maintains a neutral position in the midline. His communication aid is mounted approximately 80cm in front of him in the midline and slightly below his line of sight (see figure 5). When activating head switches mounted in his headrest Martin may move slightly into extension, bringing his head up and back, but maintains his head in a slightly flexed position, keeping his gaze forward and downward towards the device.

Figure 5: David and Martin



Martin's conversation partner is David. He has Cerebral Palsy mainly affecting his lower limbs. David was 10 years and 6 months old at the time of the video recording. David is described as having a very mild dysarthria but his speech is fully intelligible in all situations. David uses some supportive seating including a strap around his waist. In a neutral position he faces forward with his head in the midline.

4.2 Procedures

4.2.1 Recruitment procedures

Parent/carer consent was sought before approaching children. The children were asked whether or not they wished to participate in the study. Symbol-based information booklets were used to describe what their involvement would mean and to support the children in decision-making. The children who consented to participate in the study each nominated a speaking classmate with whom they wished to make a video. The consent procedure was repeated for each classmate.

4.2.2 Video recording

As noted earlier, participant observation of the subjects conducted as part of the CASTLE project reported low incidence of initiations of conversational sequences between children using communication aids and their peers (McConachie et al., 1999). Therefore, in order to collect the richest possible data in the time available within school the 12 pairs of aided speakers and their chosen peers were brought together specifically for the task of making the video recordings. This involved bringing the children to a room outside the classroom on the understanding that they would complete a video recorded activity together. The children were told that the activity would require them to discuss some issues and ideas and that they should arrange themselves in a way that would allow them to talk together. In this way the participants themselves chose how to organise their seating. The single video camera, which included an integrated microphone, was visible and mounted on a tripod a few metres from each couple. The researcher then utilised the video camera zoom and adjusted the tripod so that both participants filled the majority of the frame. This meant that the children's feet and the floors were not always included in shot, and neither were aspects of their more general environment.

The children were then left alone on the understanding that the author had to run an errand but would soon return to explain the activity. It was agreed that the video camera would remain on during the author's absence. In this way the children had full knowledge that they were being video recorded when on their own.

Central to the practice of Conversation Analysis is its focus on naturally occurring interaction. However, the children in this study had been brought together specifically to engage in conversational interaction and were clearly aware that they were being video recorded. The data is therefore different from naturally occurring data. Indeed, Jamal and Colin and Martin and David showed particular sensitivity to the recording procedure by positioning themselves side-by-side facing forward towards the video camera. Also, on occasion participants' orientation to the video recording is evident in their talk. This process of data collection therefore had a direct impact on the data collected. The "observer's paradox" (Labov, 1972) evident here means that it is not possible to validate the 'naturalness' of these data.

Consequently, the validity with which these findings might be generalisable to other school-based environments and more naturally occurring interaction involving these children is weakened. Nevertheless, the children's actions within the context of their time alone were not provoked or influenced in any way. As such these data represent the children's response to the situation in which they found themselves. In light of the minimal peer interaction observed previously with this particular group of children (McConachie, et al., 1999) it is possible that these findings represent a best case scenario where both partners are given time and motivation to engage in conversation. Such methods of data capture have been used successfully in studies of interaction between adults using communication aids and speaking partners (e.g., Collins, 1996; Bloch & Wilkinson, in press).

Lucy and Tina both use wheelchairs. They chose to face each other with their wheelchairs laying alongside each other (as if they appeared to be passing each other), for approximately 25% of their length, with Lucy facing west and upstage from Tina who is facing east. When sitting in a neural position (head in the midline facing forward) the girls are required to turn their heads through approximately 25-30 degrees in order to look at each other directly.

Jamal and Colin and Martin and David decided to sit side by side facing the video camera. In order to look directly at each other both boys must move their heads through approximately 90 degrees. Martin's wheelchair is taller than David's chair. Therefore, in order to look at each other Martin must direct his gaze downward slightly and David is required to look up.

The lengths of the videos varied between dyads and, in general, are fairly short (Jamal and Colin 10 minutes 18 seconds, Tina and Lucy 16 minutes 54 seconds, Martin and David 11 minutes 33 seconds). This was due primarily to the limited time available for organising a video recording within the children's school timetable. Children were collected from their classrooms, brought to the video recording room, left for some time, engaged in a conversation-based activity and returned to class. In addition, the author's concerns for the health and safety of children with physical disabilities and complex needs left on their own in school meant that he left the room for a relatively limited period.

The analogue video recordings were digitised and copied on to compact disc. The data was then viewed using VideoLab 3.0. VideoLab is a software application designed and produced by the Department of Human Communication Science, University College, London and available free for academic use. Further aspects of the recruitment and video recording procedures are provided in appendix 5.

4.2.3 Transcription

The three conversations were transcribed in full using CA conventions (Atkinson & Heritage, 1984) for the period of time in which the children were left on their own. The full transcription notation used is provided in appendix 1.

It has been noted that the process and notation used in transcription reflects the authors' perspectives or assumptions about the analysis they seek to conduct (Jefferson, 1979; Ochs, 1979). The establishment of interaction in which one participant is non-speaking may evolve as a complex and multifaceted form of collaborative action and participants may employ an array of communicative channels in any single spate of interaction. Additionally, any number of different organisational practices may be operating within a single element of conversation and at any one time. Concern has been raised about the eminence given to spoken forms of communication over other modalities in the transcription of interaction involving the use of communication aids (Muller & Soto, 2000). Previous research in the field has observed that, for many children with little or no functional speech, non-verbal channels become the primary interactive resource. In this thesis the transcript routinely documents aspects of the non-verbal behaviour. This is done using abbreviated prose rather than proposed symbol notation (Muller & Soto, 2000) thus retaining flexibility in the description of actions. Furthermore, close attention is given to the production of vocalisations and non-vocal sounds, such as bleeps, generated by the children's communication aids. Overall it is the sequential alignment of speech, non-verbal, vocal and non-vocal actions that is the primary organising principle in transcription.

Some conventions have been proposed for the transcription of communication aid mediated talk (von Tetzchner & Jensen, 1996). However, these do not harmonise obviously with the transcription notation used in CA. Consequently, notation guidelines typical of CA have been adopted as the primary method of representation and where necessary, for example, in transcribing VOCA mediated speech, a new notation form is used (see appendix 1). In this way the transcription aims to provide an accurate and detailed representation of features of the interaction relevant to the analysis.

4.3 Analysis

Having outlined the importance of creating a detailed and relevant transcription of the conversations the emphasis for analysis nevertheless resides in the repeated viewing of the video recordings as the primary data source (Sacks, 1984). The method for initiating an analysis involves what has been described as "*unmotivated examination*" (Sacks 1984:27) or "*unmotivated looking*" (Psathas, 1995:45). Essentially, this refers to an exploration of the data without a priori assumptions about what might be observed or particular motivations for the analysis beyond a desire to understand how the participants themselves orientate to each other and to notice patterns in the sequential organisation of the interaction.

In the first instance, each of the 12 video-recorded interactions was viewed from the perspective of "unmotivated looking". This early observation provided an opportunity to consider the naturalness of the conversations. The author of this thesis had developed personal relationships with some of the children involved in the video recordings, either through clinical work as a Speech and Language Therapist in that child's school or through working with the child under the auspices of the CASTLE project. Consequently, the author had some personal insight into the relationships between the children using communication aids and their speaking peers and the naturalness of the participants' style of interaction when being video recorded. The early viewing of the video recordings quickly identified a small number of interactions that appeared somewhat staged. These were disregarded from further analysis at this point. Subsequently, analysis proceeded through the noticing of

particular events or features of the interactions and eventually to the identification of three particular conversations that incorporated VOCA use and, at this early stage of analysis, appeared to share some similarities in the way in which the children organised their conversations. For these three dyads analysis proceeded through a detailed moment-by-moment examination of the video recordings.

It became apparent that although the interactions appeared to share some common characteristics, they were all in fact designed and operating in subtlety different ways. Therefore, in order to draw out the unique organisational practices emerging in the analysis, and to allow for some comparison of features between dyads at a detailed level, a decision was made to direct the analysis to a detailed study of three individual cases. This decision emerged as a result of repeated observation of these data, that is, it was an outcome of the analytical process rather than a predetermined decision.

Although this approach has implications for the generalisation of the findings this potential concern is outweighed by the gains in specificity of reported outcomes, reflecting more closely the reality of participants' experience. The population of children with Cerebral Palsy using communication aids is heterogeneous (Higginbotham & Bedrosian, 1995). The generalisability and arguably clinical value of findings is limited when subjects differ within and between samples (van Balkolm & Heim, 1990). Consequently, the use of single case study approach has been advocated in research work with subjects using communication aids (Remmington, 1990). For any research project involving people the selection of subjects will be influenced by a range of factors including the research question that drives the investigation and how desirable it might be that the sample is representative of a wider population. Within the CA tradition it is contended that since talk-in-interaction is organised through recurring procedures that show significant generality across a single culture, a concern for which, and how many, samples of interaction are collected and analysed is a less prominent issue (Sacks, 1984; ten Have, 1999).

Commonly within CA analysis may consider a large collection of data whereby specific phenomena are traced across the sample. Alternatively, single case studies may be conducted. In the analysis of large data samples, having described the local

sequential context of noticeable turn sequences the analysis may proceed through refining and focusing the description as new manifestations of the noticeable phenomenon are encountered across the data collection. This type of analysis pays particular attention to the examination of "deviant cases" whereby the feature under analysis is not developed in the typical way and the participants can be shown to be orientating to its absence. Deviant case analysis provides an opportunity to extend and intensify the characterisation of the feature under examination and demonstrate its realisation as a "normative" feature of interaction (Heritage, 1984b; Heritage, 1988).

CA analysis may take a single case approach. For example, Schegloff (1987a) applied findings from past work on a single episode of data with the aim of validating the relevance of past findings when applied to a new single case of talk-in-interaction. However, in employing CA as a procedure for studying children's interaction where one participant has a significant communication difficulty, the features of interaction identified in the analysis of naturally speaking adults' conversation may have little relevance to these data. It has been noted also that the application of established findings in the analysis of new data may shift the analytical paradigm from an inductive, data-driven procedure to a deductive one (ten Have, 1999). As ten Have states: *"the temptation is to use CA's previously established concepts and findings as law-like or even 'causal' rules, whereas one should, I would maintain, see them as descriptions of possible normative orientations of participants, available for various usages as* ***they*** *see fit. Any instances of talk-in-interaction is built on routines of various sorts, but it is, at the same time, a unique achievement here and now."* (ten Have, 1999:41, author's original emphasis).

This thesis is not concerned with identifying normative features of talk relevant to a broad collection of data, neither is it a validation exercise for past findings. Rather, this thesis uses the principles and practices of CA to provide an insightful perspective and robust methodological procedure for examining, in close detail, the sequential organisation of the children's talk and gaining insight into the participants' own orientation to the accomplishment of conversational interaction. This approach is justified in that it adheres to a central aim for Conversation

Analysis and is a practice that was the primary method for the early research and lectures of Harvey Sacks (Sacks, 1995). Findings are validated through strict adherence to describing the participants' own actions primarily through recourse to the next turn proof procedure, and the reliability of analysis is evidenced by the transparent handling of the raw data (Perakyla, 1997) and the presentation of findings relating directly to the primary data source.

The analysis will also aim to draw together common themes identified across the three case studies where they are observed. In this way the organisation of the analysis aims to present the specific features of conversational organisation relevant to each dyad, reflecting knowledge of the variations observed in clinical practice and reported in the literature, and to explore the generalisability of findings.

Having outlined the methodology the next three chapters will present findings from the three single cases. Each chapter of analysis examines how the conversation is accomplished, and in particular exploring: the role taken by the naturally speaking child in the organisation of the conversation, the contribution made by the VOCA and how the interaction is organised when the VOCA is not used. In some instances common patterns in interaction are observed between the dyads.

Chapter 5

5.0 Analysis and findings: Jamal and Colin

This chapter is concerned with exploring the organisation of interaction between Jamal, a VOCA user, and his naturally speaking classmate, Colin. Embedded within this central concern is a specific interest in Colin's role in conversational organisation and the contribution made by the VOCA. A major feature of the conversation between Jamal and Colin is that it is structured largely around the recurring use of adjacency pairs that commonly take the form of questions and answers. This pattern of adjacency pair organisation is established in the first topic of conversation and continues for the greater part of the interaction. Both Colin and Jamal regularly contribute first pair and second pair parts of adjacency pairs. First, the analysis will consider Colin's use of first pair parts before examining how Jamal produces such turns. It is within this pattern of conversational organisation that further significant aspects of Colin's role and the contribution of the VOCA are revealed.

5.1 Colin's use of first pair parts

The analysis of Colin's realisation of first pair parts reveals that, typically, they are generated as test questions. As such, much of the conversation takes on a game like quality. Although this is the most common class of first pair part he does not use this form exclusively. On occasion he may also design a first pair part as a command or non-test question. In each instance Colin's realisation of first pair parts brings about a robust pattern of turn exchange that recurs in the conversation. This section of analysis will examine three test questions before illustrating Colin's use of a first pair part command and non-test question. Through identifying and analysing this pattern of conversational organisation the central themes of the thesis concerning the role of the speaking partner and the contribution of the VOCA are explored.

The first of these examples is presented in extract 1 taken from the very start of the conversation. This example will be examined in detail to highlight the primary significant themes of this section of analysis. The analysis of subsequent exemplars serves to illustrate the pervasiveness of the key themes presented here.

Extract 1 (J&C: 001 – 041)

001 ⌈ ((*door shutting*)) ⌉ ⌈ ((*door shutting*)) ⌉
002 C | ((*looking at James*)) | | ((*looking at James*)) |
003 J ⌊ ((*looking over shoulder at door*)) ⌋ ⌊ ((*turns to look at C*)) ⌋
004 C ⌈°what you wanna talk about°⌉
005 ⌊ ((*looking at C*)) ⌋
006 J ⌈((*turns to VOCA*))⌉ ⌈((*orientated to VOCA*)) ⌉ ⌈((*orientated to VOCA*)) ⌉ *
007 C |((*looking at J*)) | | ((*turns to look at VOCA*))| | ((*looking at VOCA*)) |
008 ⌊ (0.7) ⌋ ⌊ (0.8) ⌋ ⌊ (1.4) ⌋
009 J ⌈ ((*orientated to VOCA*)) ⌉ * =
010 C |((*looking at VOCA , shifts body orientation towards J*))|
011 ⌊ (1.0) ⌋
012 C =⌈what you wanna talk about ⌉ ⌈ Jam ⌉
013 ⌊ ((*glances at J*)) ⌋ ⌊((*looks back to VOCA*)) ⌋
014 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
015 ⌊ (1.0) ⌋ ⌊ (1.3) ⌋
016 C Brazil
017 J ⌈((*orientated to VOCA*))⌉ * ⌈***football***
018 ⌊ (0.6) ⌋ ⌊((*head orientated down away from VOCA*))
019 C ⌈ football (.) ok ⌉
020 ⌊((*looking at VOCA*))⌋
021 C ⌈((*sits back in chair and looks away from VOCA*))⌉
022 J | ((*looking down to right*)) |
023 ⌊ (1.2) ⌋
024 C ⌈((*sitting back in chair looking away*))⌉
025 J | ((*orientates to VOCA*)) |
026 ⌊ (0.8) ⌋

→	027	C	⌈how many ti:mes have⌈ England won the world cup
	028	C	⌊ ((*looking forward*)) ⌊((*looking forward*))
	029	J	⌊ *
→	030	J	⌈((*orientated to VOCA*)) ⌉ * ⌈ ((*orientated to VOCA*)) ⌉ *
	031	C	⌊ ((*looking at forward*)) ⌊ ⌊((*looks at VOCA then to J*)) ⌊
	032		⌊ (0.4) ⌋ ⌊ (1.5) ⌋
→	033	J	⌈((*orientated to VOCA*))⌉ * ***one***
	034	C	⌊ ((*looking at J*)) ⌊
	035		⌊ (1.2) ⌋
→	036	J	⌈((*turns towards C and looks at him*))⌉
	037	C	⌊ ((*looking at J*)) ⌊
	038		⌊ (2.2) ⌋
→	039	C	⌈wu (.) now you⌈ask <u>me</u> a ⌉question about football ⌉
	040	C	⌊ ⌊((*points at J*)) ⌋ ⌊
	041		⌊ ((*J & C looking at each other*)) ⌋

The target sequence begins at line 027. The prior sequence of talk is described briefly here as a lead in to the central point of the discussion. As the adult leaves the room and shuts the door Colin asks, "°what you wanna talk about°" (line 004). Subsequently, Jamal turns to his VOCA and after a pause of 2.9 seconds a VOCA generated bleep is heard. The term pause is used to represent a silence within the participant's turn that is attributable to that person (Sacks et al., 1974; Schegloff, 1979). Colin moves in closer to Jamal and asks again, "what you wanna talk about Jam" (line 012). Then, two bleeps are heard separated by pauses of 1.0 and 1.3 seconds. At this point Colin offers the candidate "Brazil". Just 0.6 seconds later Jamal generates the single word, "***football***" (line 017), and Colin says "football (.) ok" (line 019), agreeing the first topic of the conversation. Jamal is then seen to orientate to his VOCA (line 025), bringing it into relevance (Goodwin, 1981), in the moment before Colin asks the first test question of the conversation, "how many ti:mes have England won the world cup" (line 027). A VOCA bleep is heard in overlap with the start of the word England.

It is notable that immediately following the boys' agreement to talk about football Colin's first action in development of the conversation is to ask Jamal a test

question. In designing his turn in this way Colin is providing a framework for a certain type of next action. He is selecting unequivocally Jamal as the next speaker, so that Jamal has the "*rights and is obliged to take the next turn to speak*" (Sacks, Schegloff & Jefferson, 1974: 704) and Colin relinquishes any rights or obligations to speak again before Jamal. Furthermore, Jamal should take his turn now and the turn should be a second pair part relevant to the first. In this instance that second pair part should be an answer to a question and the content of that answer will be one word. In this way Colin is structuring the conversation so that Jamal is able to take a particular type of turn which is relatively easy for him to achieve using his VOCA. In addition, Colin implies that Jamal is required to use the VOCA as the medium for turn production because he is unable to produce intelligible speech. In this instance the test question is one that makes relevant the production of a number in the next turn. In this sequential context the use of a number will refer unequivocally to the description of a set of specific events and provide a full and relevant next turn answer. In projecting the relevance of a single word answer from a specific category the test question sets up a next turn of predetermined syntactic structure. Colin will have prior knowledge of the structure and relevant content of Jamal's next turn. Colin will know in advance what it will take for Jamal's turn to reach a TRP, allowing him to know when Jamal is likely to finish his turn and therefore when he himself may take another turn. In initiating the realisation of an adjacency pair as a test question and answer exchange Jamal establishes a structurally predictable form of interaction in which a strong pattern of VOCA use is evident. It is Colin's recurrent use of first pair parts, the design of these turns and the framework they provide for the organisation of the interaction that represent the central themes of this analysis.

A VOCA generated bleep is heard 0.4 seconds after the TRP of Colin's question (line 030). A further two bleeps are heard at 1.5 and 1.2 second intervals (lines 030 and 033). During this time Jamal is orientated to his VOCA and visibly guiding the infrared beam over the devise interface. Colin does not speak but looks forward into the middle of the room, then at the VOCA, and then at Jamal.

It has been proposed that "*the end of a question which selects a next speaker seem often to constitute a transition point – a new turn starts there whether or not talk by*

another speaker is immediately begun" (Sacks, Schegloff & Jefferson 1974: 706). For Jamal and Colin, the instant Colin's question is completed the turn shifts to Jamal. Consequently, any silence at the point of speaker transfer is attributable to Jamal. Interestingly, this turn initial pause is present for 3.1 seconds which is much longer than would be expected in a conversation between speaking participants, and is in contrast to a possible standard maximum silence of approximately one second (Jefferson, 1989). That is, although long pauses are evident in conversation between speaking participants they are less common and typically some form of account is expected for their occurrence. Furthermore, this delay in spoken response is not a preferred configuration of turn exchange. The term "preferred" is used here to describe turn shape where a minimal gap exists between first and second pair parts (Levinson, 1983; Heritage, 1984b).

Although the answer is slow in arriving and a large turn initial pause is evident, engendering a dispreferred turn shape in the exchange, it is noticeable that the pause exists in terms of spoken, verbal production only. At this time Jamal is actively using the VOCA and producing VOCA bleeps (line 030-033). These physical and VOCA generated signals seen in this sequential location are indicative of the possibility that Jamal is preparing to start his turn. This remains only a possibility until the first spoken element of the turn is produced. Until that point there exists an intrinsic ambiguity concerning the precise function of these VOCA orientated actions. This point is emphasised particularly in this instance as Jamal is seen to orientate physically towards his VOCA just before Colin asks the question and a VOCA bleep is generated in overlap with the question. As such, this period of time between the TRP of the question and the generation of the spoken answer represents a turn initial pause from the perspective of spoken interaction but a period of preparation for the start of the turn for Jamal. As part of a broader examination of turn organisation Schegloff (1996) describes elements of TCU beginnings "*which project the onset of talk, or the beginning of a (next) TCU or a turn, but are not yet proper recognisable beginnings*" (Schegloff, 1996:92). Examples of such elements include, "*incipient facial expression, (e.g., smile), lip parting, cough or throat clear, (hearable) in-breath (sometimes exaggerated), as well as "uh(m)," which can serve to initiate a turn, while not yet initiating the TCU within it.*" (Schegloff, 1996:93). It is just this type of pre-beginning elements that are characterised in Jamal's production of

VOCA bleeps following the TRP of Colin's question. It seems that the VOCA generated bleeps realised in this context represent a particular class of pre-beginning elements that is unique to VOCA use. Consequently, such auditory markers of possible turn preparation will be referred to as pre-beginning elements of Jamal's TCU. So while there is no speech produced here, the bleeps and the action that Jamal engages in generating them provide Colin with signals that Jamal's turn is being worked on and will be produced although not within normal time expectations.

Immediately following the third bleep after the TRP of Colin's question the VOCA generates the answer "***one***" (line 033), at which point Jamal turns to look at Colin (line 036). Jamal's visible orientation to his VOCA just prior to Colin's question represents a physical action that signals potential speakership by making relevant VOCA use. If in orientating to his VOCA just prior to Colin's question Jamal was initiating a turn it is now apparent that he has abandoned that course of action in favour of answering the question. It is notable that in waiting silently here Colin does not orientate to the bleep generated in overlap with his question as problematic. Unlike spoken conversation where speakers may work to secure the gaze of their co-participant at the initiation of a turn (Goodwin, 1981), Jamal is required to orientate his gaze away from his co-participant in initiation of the turn. During this period Colin is seen to wait, without speaking, and it is this silent waiting that suggest that he is treating Jamal's actions as a preparation to provide an answer. The production of the VOCA mediated answer takes approximately 3.1 seconds. Such delay in VOCA mediated speech generation is very typical of VOCA use in general (e.g., Robillard, 1994; Higginbotham & Wilkins, 1999). As a one-word answer and a number Jamal's turn is a relevant second pair part; it confirms that Jamal has judged it his turn to talk, that the prior utterance was a question and that the relevance cast forward by the question has been orientated to fully. Jamal also turns away from the VOCA and towards Colin. In so doing Jamal moves out of speakership and provides an additional non-verbal signal for the completion of his turn.

In the 2.2 seconds that follow the completion of Jamal's answer he turns and looks at Colin and Colin retains his gaze directed towards Jamal. Colin then speaks again saying, "wu (.) now you ask me a question about football" (line 039). This new turn implicitly treats Jamal's answer as unproblematic and the sequence is closed. In

other examples examined below an explicit response to the answer is seen and this is perhaps a more typical event in a sequence of turns initiated by a test question (Mehan, 1979; Tarplee, 1996; Mahon, 2003). Nevertheless, the boys do not orientate to the possibility that a third turn response is missing. Colin's turn here also places strong expectations on the next actions and the content of these actions. This turn will be discussed in greater detail below. For now, it is notable that this action reinitiates the test question exchange and it is the case more generally that the topics covered by test questions tend to repeat in a series. For instance, the boys ask each other three successive questions concerning the World Cup before moving on to take turns to ask each other their ages.

This second extract illustrates two further examples of the use of test questions, the subsequent turn initial pause, Jamal's answer and, in this instance, Colin's third turn response to the turn.

Extract 2 (J&C: 097 – 128)

→	097	C	⌈how many times have Brazil⌉ ⌈won the world cup
	098		| *((looking ahead & to right))* ⌋ ⌊ *((looks at VOCA*
	099	J	⌊*((head tilted and turned towards C))*
→	100	J	⌈*((orientates to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ **** of course***
	101	C	| *((looking at VOCA))* | | *((looking at VOCA))* |
	102		⌊ (3.0) ⌋ ⌊ (1.6) ⌋
→	103	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ **** four*** ⌈*((looks at C))*⌉
	104	C	| *((looking at VOCA))* | | *((looking at VOCA))* | ⌊*((looks at J))* ⌋
	105		⌊ (0.8) ⌋ ⌊ (1.0) ⌋
→	106	C	⌈ye: ⌈ :eah
	107		⌊*((flicks arm forward and pulls it back towards chest, leaning back, looking at J))* ⌊ *((arm reaches chest, looks at VOCA))*
→	108	C	⌈ spot on ⌉
	109		| *((leaning back looking at VOCA))* |
	110	J	| [hɜ] |
	111		⌊ *((turns head left and down))* ⌋
	112		(0.8)
→	113	C	⌈ um: ⌉ ⌈ (1.3) ⌉
	114		| *((looking straight ahead))* | | *((gaze towards VOCA area))* |
	115	J	⌊*((head at rest looking ahead/down))* ⌋ ⌊ *((orientates to VOCA))* ⌋

→	116	C	⌈ how old am ⌉ ⌈I
	117		|((*looking at VOCA*))|((*glances ahead*)) |((*looking at VOCA*))
	118	J	⌊ [ħə] ⌋ ⌊*
	119	J	⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
	120	C	| ((*looks at J*)) | | ((*looking at J*)) |
	121		⌊ (1.7) ⌋ ⌊ (0.8) ⌋
→	122	J	⌈((*orientated to VOCA*))⌉ * ⌈((*turns to C*)) ⌉ ***seven***
	123	C	| ((*looking at J*)) | ⌊((*looking at J*))⌋
	124		⌊ (0.6) ⌋
→	125	C	seven an a <u>half</u> (1 .0)⌈near:ly ⌉
	126	J	⌊[hɪɜ] ⌋
	127	C	how (.) now⌈you ask me a question⌉
	128		⌊ ((*points at J*)) ⌋

The first test question and answer exchange illustrated in this extract is initiated at line 097 where Colin asks, "how many times have Brazil won the world cup". This test question is one that, once again, concerns the football World Cup. It is worth noting here that this question immediately follows one from Jamal in which he asks about how many times Mexico have won the World Cup (see appendix 2, lines 046-078). In turn, that question follows the first question in the series illustrated in extract 1 above in which Colin asks about how many times England have won. Like the others, this test question makes a strong projection about the nature of the next turn, the likely content and therefore how the VOCA will be used. During Colin's question Jamal orientates towards his VOCA bringing the possibility of VOCA use into relevance by directing his gaze there (Goodwin, 1981). In parallel with the last part of his question Colin also looks at the VOCA.

So, Jamal moves into and occupies the role of speaker, and Colin also orientates his gaze to the device. The VOCA is a physical object in the conversation, but its relevance to the conversation varies according to the sequential context of the talk. Colin's use of questions positions VOCA use within the conversation, and, in its use, the VOCA shapes the boys' physical alignment with respect to each other and the device. In looking at the VOCA Colin displays his commitment to VOCA use and the boys' shared direction of gaze locates it as the point of shared attention.

Three seconds after the TRP of the question the first VOCA generated bleep is heard, signalling the likelihood that a VOCA mediated utterance is forthcoming. After a further 1.6 seconds a second bleep is heard followed immediately by the utterance "***of course***" (line 100). This is not the answer but is a display of a stance or attitude towards the answer, and which still maps the relevance of the answer as forthcoming. Another two VOCA generated bleeps are heard in the subsequent 1.8 seconds at which point the answer "***four***" is generated (line 103). It is apparent that Jamal's VOCA mediated turn here is characterised not only by a turn initial pause in which VOCA generated pre-beginning bleeps signal the possibility of Jamal's initiation of the spoken turn, but also that intra-turn pauses are a characteristic of Jamal's turns constructed of more than one word.

As observed in the example described in extract 1, the answer is a single TCU number and as part of a display of turn completion Jamal turns towards Colin, moving out of operational alignment with his VOCA. Again, as observed above, throughout the construction of the pre-beginning element and the answer Colin remains silent. This is particularly interesting observation because Jamal's answer comes in two parts separated by a pause of 1.8 seconds. It is evident that in other instances of Jamal's turn construction Colin may enter his turn in just such a sequential location and provide a candidate turn completion himself (illustrated in extracts 6,7 and 8 below).

On this occasion Colin takes a third turn following from Jamal's VOCA mediated answer. He celebrates, gently cheering, "yeah" and flicking his arm in the air, and saying, "spot on". Jamal is heard to vocalise in overlap with this last utterance. Although the primary focus of this analysis concerns Colin's first turn question and Jamal's answer in the second turn it is evident that on some occasions Colin may take a third turn response to Jamal's answer. The realisation of a three-part turn exchange is a common feature of turn sequences initiated by test questions. For example, this three part turn exchange echoes conventional practices in turn taking observed in teacher pupil talk (Mehan, 1979), and is a feature of interaction between young children and their parents in picture labelling activities (Tarplee, 1996), and in labelling, question and answer sequences in adult conversation with deaf children

where English is an additional language (Mahon, 2003). In this interaction Colin's third turn is a clear celebration of the accuracy of the answer. In this way he displays his orientation to the test question format as a kind of game rather than as a procedure for facilitating Jamal's learning in any way. Colin's celebration also acts as a marker for the end of this particular sequence. This particular exchange unfolds in a clear three-part test question, answer response sequence, and despite the intra-turn pause evident in the two-part construction of Jamal's answer Colin waits until he finishes his answer before speaking again.

Colin then initiates a test question and answer exchange again, this time posing the test question, "um how old am I" (lines 113 and 116). Although this test question changes the theme of the series of questions, it projects the development of the interaction in exactly the same way as all the previous test questions. That is, it makes relevant a single word and TCU in the next turn, and in exactly the same way as seen above the answer should be a number. As observed in extract 1, Jamal conducts some VOCA orientated activity in parallel with Colin's test question. Following the test question Jamal works with his VOCA while Colin waits silently, looking at him. The silence is punctuated by three pre-beginning bleeps at intervals of 1.7, 0.8 and 0.6 seconds respectively, before Jamal generates an answer, "***seven***" (line 122). Jamal then turns towards Colin, moving out of speakership following production of the answer. In this instance he does so after the final bleep of the series but before the last word is spoken. Colin then brings about a third turn response to the answer, in this instance generating an other-initiated other repair (Schegloff et al., 1977) of Jamal's answer, saying "seven an a <u>half</u> (1.0) near:ly" (line 125). Again, this action serves as a response to the answer and brings the test question sequence to a close.

The fourth example presented in extract 3 illustrates the use of an adjacency pair exchange realised as a first pair part command and a second pair part response. This example differs from the pattern of action observed in test question and answer exchanges described so far. Nevertheless, the exchange retains the central pattern of turn exchange observed whereby Colin takes a first pair part in which he projects a strong relevance for the type of turn that Jamal should take next and how he should use his VOCA in that turn.

Extract 3 (J&C: 521 – 534)

→	521	C	tell me your best song
	522	J	⌈((*orientates to VOCA*))⌉ *
	523	C	| ((*looking at J.*)) |
	524		⌊ (2.1) ⌋
	525	J	⌈((*orientated to VOCA*))⌉ *
	526	C	| ((*looking at J*)) |
	527		⌊ (2.9) ⌋
→	528	C	⌈ i s i t ⌉⌈Asha
	529	J	⌊ ((*orientated to VOCA*)) ⌋⌊*
→	530	J	⌈((*orientated to VOCA*))⌉ * ***Asha you make me wanna***
	531	C	| ((*looking at J.*)) |
	532		⌊ (2.4) ⌋
	533		(0.76)
	534	C	yeah sing it

The example begins with Colin issuing a command "tell me your best song" (line 521). This action allocates unequivocally the next turn to Jamal and an expectation for how he might use his device to construct a turn in that slot. In this sense Colin's turn here acts very much like a question. Colin orientates to his VOCA as a pre-beginning movement into possible speakership and 2.1 seconds later the first pre-beginning bleep is heard. This is followed 2.9 seconds later with a further bleep. Just after the second bleep Colin is seen to enter into turn initial pause in parallel with the pre-beginning elements of Jamal's turn, to offer a candidate answer to his own question, asking, "is it Asha" (line 528). A VOCA bleep (line 529) is generated in overlap with the word "Asha".

Interestingly, Colin produces a candidate answer to his question and one that projects an acceptance or rejection as a minimally acceptable next turn. Such a turn could be produced as a single word yes or no, communicated through the VOCA or non-verbally with a nod or shake of the head. In this way Colin implicates a relevant content and form of the next action, and thus how Jamal could use his VOCA to generate a single word that projects a clearly identifiable TRP. It is notable that this type of next turn is also set up by Colin's use of test questions. Indeed, as a question it projects a new strong relevance for such a next action, while leaving open the

possibility that a next action that responds to the first command will simultaneously answer the second question.

It is notable that in this instance Colin enters the turn initial pause in parallel with elements of Jamal's pre-beginning activity. In entering Jamal's turn initial pause with a candidate answer Colin re-orientates the shape of the sequence progression from a dispreferred (Levinson, 1983; Heritage, 1984b) turn shape implicated by the turn initial pause, to a turn exchange in which the inter-turn gap is reduced. Although different, this type of action is analogous with practices observed in participants' organisation of disagreement with assessments (Pomerantz, 1984), and in the rejection of invitations (Davidson, 1984). This feature of the interaction also echoes the redesign of turns to increase their "summoning power" described by Light, Collier and Parnes (1985a) in their examination of adult - child conversation. Light and colleagues interpret such actions as being concerned with increasing the obligation on the child to reply by decreasing the communicative demands of the child using a communication aid. Although this may be an element of the feature described here it is also apparent that Colin's actions are concerned with increasing the predictability or constraining the context in which the VOCA may be used to generate a turn and hence the predictability of the content and, consequently, TRP of that turn.

Two point four seconds after he offers a candidate answer in the form of a question Jamal generates the utterance "***Asha you make me wanna***" (line 530) as a complete single utterance. This turn does the job of answering the initial request with no evidence of being designed in relation to Colin's candidate answer. Colin responds saying, "yeah sing it" (line 534). In gently cheering "yeah" Colin generates the type of third turn response seen originally in the first example from extract 2. In so doing he evokes a game quality to the interaction once more. In latching "yeah" and the next command, "sing it", that is, continuing the turn without a pause between these elements, Colin sets up a next VOCA mediated turn with specific expectations for VOCA use. This episode of interaction is distinct from the test question exchange but, importantly, like the test question sequences of turns, this exchange is organised around an adjacency pair, with Colin actively seeking to organise when and how Jamal might contribute to the talk through his VOCA.

The final example of the organisation of the interaction through recurring adjacency pairs is presented below. This example differs from those above because although Colin asks a question it is not a test question. Furthermore Jamal is seen to develop the interaction using his VOCA to generate some humour in the talk beyond the interactional slot provided for the answer.

Extract 4 (J&C: 209 – 269)

→	209	C	how old is Craig
→	210	J	⌈*((orientated to VOCA))*⌉ * ⌈ ((orientated to VOCA)) ⌉ * ***two***
	211	C	| ((*looking down*)) | |((*glances to J then looks down again*))|
	212		⌊ (1.9) ⌋ ⌊ (2.2) ⌋
	213	J	⌈ ((*orientated to VOCA*)) ⌉
	214	C	|((*looking down then looks up at J*)) |
	215		⌊ (2.2) ⌋
	216	J	⌈*
	217	C	|[ts:k]
	218		⌊((*holds hand to mouth*))
→	219	J	* ⌈***four***
	220		⌊[həhə]
→	221	J	⌈((*orientated to VOCA*))⌉ * ⌈ ***twenty four*** ⌉ [hə]
	222		|((*orientated to VOCA*)) | ⌊((*turns & looks at C*)) ⌋
	223		⌊ (1.2) ⌋
	224	J	⌈((*looking at C*))⌉
	225	C	|((*looking at J*)) |
	226		⌊ (0.5) ⌋
→	227	C	a:h twenty four
	228	J	[ə:əhəhə] ⌈[ʕ: : :] ⌉
	229	C	⌊wu I can't say yes or ⌋ no 'cause I don't know
	230	J	((*orientates to VOCA*))
	231	C	⌈[ʃɣ:]
	232		⌊((*follows J's gaze to VOCA*))
→	233	J	⌈ ((*orientated to VOCA*)) ⌉ ⌈* ***and*** ⌉⌈((*orientated to VOCA*)) ⌉
	234	C	⌊ ((*sniffs & looks at camera*)) ⌋ ⌊((*looking at camera*))⌋ | ((*looking at camera*)) |
	235		⌊ (0.9) ⌋

236 J [hɜ: :] (0.9) [hɑ:] ⌈ [: : ə] ⌉ *

237 C ⌊((*from looking at camera turn to look up at VOCA*))⌋

238 J ⌈ [hɜ: : :] ⌉ * ⌈((*orientated to VOCA*)) ⌉

239 C ⌊((*looking at VOCA*)) ⌋ | ask |

240 ⌊ ((*turns to J*)) ⌋

241 C ⌈ me

242 | ((*points to J*))

243 J ⌊ *

→ 244 J ***ei⌈ght***

→ 245 C ⌊a question now

→ 246 J ⌈((*orientated to VOCA*))⌉ * ***four*** ⌈((*orientated to VOCA*))⌉

247 C | ((*looking at J*)) | | ((*looking at J*)) |

248 ⌊ (0.8) ⌋ ⌊ (1.0) ⌋

→ 249 J [hɜ: :] ⌈ * ***two*** ⌉ ***hundred and eight four***

250 J ⌊[həhə] ⌋

251 J ⌈ ((*turns to C smiling*)) ⌉⌈ [ɜ:hə]

252 C | ((*looking at J raises eyebrows & smile*)) |⌊((*leans back looks down*))

253 ⌊ (1.5) ⌋

254 (0.8)

→ 255 C two⌈ hundred and ↑ei ⌉ghty four

256 J | [hɜ:]↑ |

257 ⌊((*looks up at VOCA*))⌋

258 J [ɑ:hə]

259 J ⌈((*orientates to VOCA*)) ⌉ * ⌈((*orientated to VOCA*)) ⌉ ⌈*

260 C |((*looking at VOCA smiles*)) | | [h^{n}] | ⌊(sniffs)

261 ⌊ (1.4) ⌋ ⌊ (2.7) ⌋

262 J ⌈((*orientated to VOCA*))⌉ * ⌈((*looks to left towards window & back to VOCA*))⌉

263 C | ((*looks up*)) | |((*looking generally in direction of window*)) |

264 ⌊ (3.0) ⌋ ⌊ (4.8) ⌋

265 J ask ⌈ me a question

266 C ⌊ *

267 J ⌈((*orientated to VOCA*))⌉ * ***what*** ⌈((*orientated to VOCA*))⌉ * ***what's*** *

268 C | ((*looks at VOCA*)) | | ((*looking at VOCA*)) |

269 ⌊ (1.6) ⌋ ⌊ (1.0) ⌋

This example begins with Colin asking the question, "how old is Craig" (line 209). Craig is an adult and Jamal's personal Learning Support Assistant. As seen in each example above, this question makes relevant specific type of turn and type of VOCA use next. Like the first three examples (extract 1 line 027 and extract 2 lines 097 and 116), Colin's question makes relevant a number as the answer. As such, Colin projects an expectation that Jamal will use his VOCA to generate a specific category of event that will provide indisputably an answer and project its own TRP clearly. Jamal works with his VOCA and the first VOCA bleep is heard 1.9 seconds later. The next bleep follows 2.2 seconds after that and immediately following this second bleep the single word "***two***" is produced.

A further 2.2 seconds later a third bleep is heard and at the same moment Colin produces a sudden vocalisation, "[ts:k]" (line 217) and puts his hand over his mouth. This is hearable as a form of laughter. Then, Jamal generates the single word "***four***" (line 219) and simultaneously produces two short vocalisations also hearable as laughter "[həhə]" (line 220). In so doing he is observed to treat Colin's prior action as an invitation to laugh. In generating this form of laughter Colin displays his understanding that Jamal's turn has not reached the TRP, and locates the source of the humour in the possibility that Jamal might have finished and given Craig's age as "two". So, Colin plays on the boys' understanding about the type of turn that will come next, the likely content of that turn and the delay in consecutive elements of the VOCA mediated turn to locate humour in Jamal's actions.

After 1.2 seconds a fourth bleep is heard and the VOCA produces the term "***twenty four***" (line 221), after which Jamal generates a further short vocalisation again hearable as laughter "[hə]" (line 221). Colin then repeats the answer apparently marking his updated understanding saying, "a:h twenty four" (line 227). Jamal is then heard to vocalise again "[ə:əhəhə ʕ: : :]" (line 228) and in overlap with this vocalisation Colin says, "wu I can't say yes or no 'cause I don't know" (line 229). So, in the location where a third turn adjudication of the answer is due, Colin displays publicly that his question was not a test question.

At this point Jamal looks up at his VOCA (line 230). Colin then generates a vocalisation which is hearable as a form of laughter "[ʃɣ:]" (line 231) as he follows Jamal's gaze to the VOCA (line 232). Colin then sniffs and looks directly at the video camera, during which time Jamal remains orientated to his VOCA. Next, a VOCA bleep is heard followed immediately by the single word "***and***" (line 233). As a co-ordinating conjunction this word signals that more VOCA mediated speech is due and that it will link to the prior talk in some way. At this point Colin remains looking at the camera. The boys maintain this physical alignment, with Jamal working with his VOCA and Colin looking at the camera for a further 0.9 seconds, when Jamal is heard to produce a vocalisation "[hɜ: :]" followed, 0.9 seconds later, by a vocalisation "[hɑ: : : ə]" (line 236). In parallel with Jamal's vocalisation Colin turns and looks at the VOCA. A further bleep is heard and Jamal vocalises again "[hɜ: : :]" (line 238) and this is followed by another bleep.

Vocalisation by Jamal is fairly uncommon in this interaction, and, interestingly, as the VOCA mediated turn slowly unfolds it becomes apparent that this vocalisation, hearable as laughter, precedes the production of a joke. It cannot be certain whether Colin orientates to this possibility here but it is at this point that Colin turns to Jamal and issues a meta-interactional command, "ask me a question now" (lines 239, 241 and 245). In this way Colin orientates to the common pattern of turn exchange as a mechanism for progressing the conversation.

Jamal generates the VOCA mediated word "***eight***" (line 244) in overlap with Colin's meta-interactional command. At the end of Colin's meta-interactional command Jamal remains orientated to his VOCA and Colin looks at him, and 0.8 seconds later Jamal generates the word "***four***" (line 246). The boys retain this physical positioning for a further 1.0 second, at which point Jamal vocalises again "[hɜ: :]" (line 249) and generates the phrase "***two hundred and eighty four***" (line 249), turning to Colin and smiling. Jamal produces two short pulses of laughter "[həhə]" (line 250) in overlap with the first word "***two***".

Colin raises his eyebrows and smiles back (line 252) and as Jamal vocalises again "[ɜ:hə]" (line 251) Colin leans back in his chair and looks down. Colin then repeats

Jamal's joke with heightened stress and a rising pitch movement, reflecting the humour intended (line 255), and Jamal vocalises in overlap with this turn "[hɜ:]↑" (line 256), smiles, and looks up to his VOCA. Jamal then generates a short further vocalisation "[ɑ:hə]" (line 258) before orientating to his VOCA more fully. Colin follows Jamal's gaze to the VOCA and 1.4 seconds later a bleep is heard, signalling Jamal's use of the device.

Colin then generates a short vocalisation "[h^n]"(line 260) hearable as a form of laughter and a further bleep is heard after 2.7 seconds. Another bleep is heard 3.0 seconds after that at which point Jamal turns away from the VOCA to look towards the window and then orientates back to his VOCA. This takes 4.8 seconds during which time Colin is also looking in the general direction of the widow. It is at this point that Colin issues a second meta-interactional command, again asking Jamal to ask him a question saying, "ask me a question" (line 265), and he then looks at the VOCA (line 268) in anticipation of more VOCA generated speech. A VOCA bleep is generated in overlap with "me" of the question. After 1.6 seconds Jamal is seen to cooperate with this command, producing the question word "***what***" (line 267).

This extract provides a further example of the use of adjacency pairs in which Colin initiates the first pair part, here realised as a non-test question and answer exchange, in the organisation of the boys' conversation. This example is significant because it illustrates how Colin orientates to the delayed production of an answer and the idiosyncratic way in which Jamal produces a number to treat the incomplete turn in progress as a joke. In turn, Jamal uses his VOCA to deliver a joke of his own.

It is clear that Jamal's VOCA mediated turn here is unlike a spoken utterance. Most strikingly, it is generated at a considerably slower rate than spoken language, and is characterised by multiple lengthy pauses within the turn. These are very typical features of Jamal's turn extending beyond one word (and has been hinted at in the discussion of extract 2, lines 100 and 103, page 84). In discussion of alternative uses of next turn position Schegloff contends that there exists a preference for keeping the next turn position free for implicated next events and that this principle applies to a range of features in talk including within turns. Schegloff states: "*it appeared to me*

that this is a specification, for "sequences", of a more general preference for "progressivity", that is for "next parts" of structured units (e.g., turns, turn construction units like sentences, stories etc.) to come next" (Schegloff, 1979a: 268). In an analysis of listener entry into speaker turns Lerner (1996) asserts also that the "progressivity" of TCUs incorporates the features of successive word progression, termed sequential adjacency, and the turn's internal metric or rhythm, termed serial adjacency. Such ideas are useful concepts in the analysis of VOCA mediated turns. Describing Jamal's VOCA mediated single and multiple word turns with this analytic framework it is apparent that VOCA mediated turns are characterised by delayed progressivity, that is, delayed sequential adjacency and disrupted serial adjacency.

5.1.1 Summary

Colin frequently takes turns that are designed as first pair parts of adjacency pairs. Most commonly these are realised as questions, and often test questions. It is notable that Jamal takes some considerable time to generate answers. During the turn initial pause evident in each of these examples Colin usually waits for Jamal to complete his turn before speaking again. Where this does not happen Colin enters the turn initial pause to create a new question. On completing his turn Jamal is seen to turn away from his VOCA and orientate towards Colin. On occasions Colin may make a third turn response to the answer. Where this does not happen the interaction may move on into another test question exchange without orientating to the possibility that a third turn is missing. When Colin does take a third turn they have been concerned with celebrating Jamal's answer or conducting a repair of the answer that is quickly modified to upgrade its accuracy. Colin is also seen to use the relevance of a third turn slot to display his inability to adjudicate on Jamal's answer (see extract 4).

It is clear that in organising the interaction through a recurring series of test questions Colin's actions have implications for the structure of the interaction and VOCA use. These exchanges consist of recurrent turn exchanges of a similar type, so that for the duration of any episode taking this format the distribution of turns and

turn types between the two participants is established and predictable. As such, these sequences of turns possess strong and conventional structural regularity. Colin designs his talk to structure not only the sequential location and type of VOCA turn but also the content of that turn.

Where Colin designs first pair parts as (test) questions such as, those about England and Brazil in the World Cup (an event taking place at the time the videos were made and concerning teams that Jamal supports, particularly Brazil), and questions about ages and names, he provides opportunities for Jamal to take an obviously relevant next turn. Thus, first pair parts designed as (test) questions are not concerned with testing knowledge or facilitating learning but in organising a sequential location for Jamal to take a VOCA mediated turn. In this way Colin initiates and reinitiates a robust pattern of turn exchange in which the VOCA is cast in a very specific role. Colin's questions, and the prospect of correct answers to these questions, make possible a public statement of the boys' state of shared understanding. The VOCA, then, is displayed as a medium through which their shared knowledge and interests are shown, and as such the strong pattern of VOCA use, although limited in its scope, provides the public demonstration of the boys' relationship.

It is notable also that Jamal's orientation to and from his VOCA signal entry and exit from the role of speaker. Colin may also observe the VOCA interface during the production of Jamal's VOCA mediated utterances. The relevance of Jamal's VOCA in the conversation is related to the sequential organisation of turns.

5.2 Colin brings about Jamal's first pair parts

Jamal is observed to use his VOCA to take first pair parts and largely these are realised as questions. Like Colin, these can take the form of test questions although only two of Jamal's four first pair part turns are test questions. This next section of analysis will explore Jamal's use of first pair parts, highlighting some interesting similarities and significant differences with Colin's. Initially the analysis will present a straightforward example of VOCA use in the development of an adjacency pair exchange. Subsequent examples will describe more complex and sometimes

problematic issues evident in Jamal's production of first pair parts. Consider extract 5 below.

Extract 5 (J&C: 262 – 296)

262	J	⌈((*orientated to VOCA*))⌉ *	⌈((*looks to left towards window & back to VOCA*))⌉
263	C	| ((*looks up*)) |	| ((*looking generally in direction of window*)) |
264		⌊ (3.0) ⌋	⌊ (4.8) ⌋
→ 265	J	ask ⌈ me a question	
266	C	⌊ *	
→ 267	J	⌈((*orientated to VOCA*))⌉ * ***what***	⌈((*orientated to VOCA*))⌉ * ***what's*** *
268	C	| ((*looks at VOCA*)) |	| ((*looking at VOCA*)) |
269		⌊ (1.6) ⌋	⌊ (1.0) ⌋
→ 270	J	⌈((*orientated to VOCA*))⌉ * ***your***	
271	C	| ((*looking at VOCA*)) |	
272		⌊ (1.1) ⌋	
273	J	⌈((*orientated to VOCA*))⌉ *	
274	C	| ((*looking at VOCA*)) |	
275		⌊ (1.3) ⌋	
→ 276	J	⌈ ((*orientated to VOCA*)) ⌉ * ***mum*** * ***mum's*** *	
277	C	| ((*turns slightly away from VOCA towards J*)) |	
278		⌊ (1.1) ⌋	
279	J	⌈ ((*orientated to VOCA*)) ⌉ *	
280	C	| ((*looking towards J*)) |	
281		⌊ (0.5) ⌋	
→ 282	J	⌈ ((*orientated to VOCA*)) ⌉ * ***name*** ((*turns to C*))	
283	C	| ((*looking towards J*)) |	
284		⌊ (1.8) ⌋	
285		(0.9)	
→ 286	C	Susie:	
287	J	⌈((*head forward and tilted down slightly looking at C smiling*))⌉	
288	C	| ((*looking at J*)) |	
289		⌊ (1.4) ⌋	
290		⌈ ((*holding that position*)) ⌉	
291		|((*swivels chair to right and back but remains looking at J*)) |	
292		⌊ (1.6) ⌋	

293	J	⌈	*((tilts head up))* ⌉
294	C	|	*((chair moves through last arc of swivel))* |
295		⌊	(0.6) ⌋
→ 296	C	I know your mum's name	

At the start of this extract and before Jamal takes a turn Colin is observed to say, "ask me a question" (line 265). In a similar way to questions this command provides a strongly pre-defined framework for what Jamal should do next. Here Colin displays an expectation that Jamal should take a VOCA mediated turn next and use it to ask him a question. This turn acts as a meta-interactional command in that it is a public evocation of how the structure of the conversation should develop. In contrast to the implicit management of turn taking in naturally spoken interaction, the question of how turns at talk are to be distributed across speakers becomes a matter for explicit negotiation. It would seem that Colin's meta-interactional command itself acts as a class of first pair part and, consequently, Jamal's next turn has a dual status, representing a second pair part to Colin's command and a new first pair part. Interestingly, this meta-interactional command projects a sequence of relevant actions beyond just the next turn. In setting up the next turn as a question Colin's meta-interactional command also makes relevant a third turn which should be an answer to that question. It is possible also that further turns in response to the answer may occur. Colin's use of meta-interactional commands is a recurring feature of the conversation. They shape the subsequent interaction and Jamal's place in that interaction and the way he might use his VOCA.

Like Colin's use of first pair part (test) questions (extract 1 line 025) Jamal orientates to his VOCA in the moments before Colin speaks (line 262), bringing the VOCA into relevance (Goodwin, 1981), and a VOCA generated bleep is heard in overlap with Colin's turn here. As stated earlier, the boys do not obviously orientate to Jamal's early movement towards his VOCA and the generation of a VOCA bleep in overlap with Colin's command as problematic to the progression of the talk. At the TRP of his turn Colin looks at the VOCA so that in the turn initial pause, attributable to Jamal, the boys are physically orientated in the direction of the device. It was noted in the discussion of extract 2 that VOCA use may shape on the boys' physical alignments. In this example the VOCA again becomes the location of the boys' joint

attention. After 1.6 seconds a bleep is heard followed immediately by the single word "***what***" (line 267). This first word signals Jamal's alignment with Colin's command, that is, that he is taking his VOCA mediated turn now and that he is asking a question.

One second later Jamal restarts his turn with a self-initiated self repair (Schegloff et al., 1977) of the first element, this time saying, "***what's***" (line 267). This word is preceded and followed immediately by VOCA generated bleeps. In repairing his turn here Jamal displays himself both as a competent VOCA user and language user. Following a further pause of 1.1 seconds Jamal builds on the prior element, generating the word "***your***" (line 270). After a further 2.3 seconds, a pause punctuated by two bleeps, Jamal generates the word "***mum***" which he self repairs immediately, producing it a second time as "***mum's***" (line 276), again emphasising his preference for accurate syntax. At this point Colin looks towards Jamal. After a further pause of 0.5 seconds a bleep is heard and then another is produced 1.8 seconds later. This latest bleep is followed immediately by the VOCA generated word "***name***" and Jamal moves out of potential speakership by turning towards Colin (line 282). The boys are looking at each other now and Colin answers the question saying, "Susie" (line 286). In the next 3.6 seconds a number of actions are observed. First, Colin swivels his chair through an arc of approximately 80 degrees. He does this using his lower abdomen and hips so that he is able to maintain gaze towards Jamal, and in this way he maintains orientation to the possibility that Jamal will initiate a third turn action. As the chair moves through the final degrees of the arc of its rotation, moving out of body torque (Schegloff, 1998), and returning to the starting position Jamal is observed to tilt his head slightly. Jamal does not obviously take a third turn here to respond to Colin's answer and, finally, Colin speaks again saying, "I know your mum's name" (line 296).

Notably, although Jamal produces a recognisable first pair part, it is Colin who is the architect of the sequence of turns overall and he does this through the use of a meta-interactional command. In this example the exchange passes off straightforwardly: Jamal aligns with Colin's command, using his VOCA to ask a question and Colin waits for Jamal to complete his question and then answers. As noted in the

discussion of extract 4, Jamal's turns are characterised by multiple lengthy within turn pauses that bring about a delayed progessivity (Schegloff, 1979) to the turn.

Now consider extract 6 below. Within the overall organisation of the conversation this sequence of events is begun immediately following extract 1 in which Colin asks a test question. The first line of this extract (line 039) appears at the end of extract 1 and implicitly signals that that sequence of turns has closed. This extract illustrates further the strong pattern of turn exchange illustrated in extract 5 above, with one significant difference. Unlike the prior example where Colin waits for Jamal to complete his turn before speaking again, here Colin treats Jamal's turn as permeable, entering Jamal's turn in progress in anticipation of unspoken elements of the turn or the TRP.

The nature of VOCA mediated turns is such that the transcription of a single utterance may occupy several pages. For the next set of examples a full transcript illustrating the turn pattern of interest is provided first. Then, in order to support the reader in linking the description and analysis of the interaction directly to the transcription, relevant segments are represented in the text.

Extract 6 (J&C: 039 – 099)

→	039	C	⌈wu (.) now you⌈ask <u>me</u> a ⌉question about football⌉
	040	C	| ⌊*((points at J))*⌋ |
	041		⌊ *((J & C looking at each other))* ⌋
	042	J	⌈ *((turns & looks up to VOCA))* ⌉ * ⌈*((orientated to VOCA))*⌉ *
	043	C	|*((looks down at his hand on w'chair tray))*| | *((looks up at VOCA))* |
	044		⌊ (2.2) ⌋ ⌊ (0.9) ⌋
→	046	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ * ***how***
	047	C	| *((looking at VOCA))* | | *((looking at VOCA))* |
	048		⌊ (4.2) ⌋ ⌊ (2.1) ⌋
→	049	J	⌈*((orientated to VOCA))*⌉ ****m*** ⌈*((orientated to VOCA))*⌉
	050	C	| *((looking at VOCA))* | | *((looking at VOCA))* |
	051		⌊ (3.0) ⌋ ⌊ (1.6) ⌋
→	052	C	how man⌈y: ⌈ *((looking at VOCA))* ⌉
→	053	J	⌊* ***a*** | *((orientated to VOCA))*| * ***n***
	054		⌊ (0.6) ⌋

→ 056 J ⌈((*orientated to VOCA*))⌉ * ***y*** ⌈ ((*notes from VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉

→ 057 C | ((*looking at VOCA*)) | ⌊ °how ma (.) ny° ⌋ | ((*looking at VOCA*)) |

058 ⌊ (0.4) ⌋ ⌊ (1.7) ⌋

→ 059 C ⌈times⌉

→ 060 J ⌊* ⌋ * ***time***

061 J ⌈((*orientated to VOCA*))⌉ *

062 C | ((*looking at VOCA*)) |

063 ⌊ (1.1) ⌋

→ 064 C ⌈ has Bra ⌉ ⌈ zil ⌉ ⌈won

→ 065 J ⌊((*orientated to VOCA*))⌋ ⌊***times***⌋ ⌊*

066 J ⌈ ((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *

067 C |((*looks at J & back to VOCA*)) | | ((*looking at VOCA*)) |

068 ⌊ (1.4) ⌋ ⌊ (1.4) ⌋

→ 069 J ⌈((*orientated to VOCA*))⌉ * ***has*** ⌈((*orientated to VOCA*))⌉ *

070 C | ((*looking at VOCA*))| | ((*looking at VOCA*)) |

071 ⌊ (1.0) ⌋ ⌊ (0.8) ⌋

→ 072 J ⌈((*orientated to VOCA*))⌉ * ***Mexico***

073 C | ((*looking at VOCA*)) |

074 ⌊ (1.1) ⌋

075 J ⌈((*orientated to VOCA*))⌉ ⌈*

→ 076 C |((*looking at VOCA*)) | ⌊qualified

077 ⌊ (2.8) ⌋

→ 078 J ⌈((*orientated to VOCA*))⌉ * ***won***

079 C | ((*looking at VOCA*)) |

080 ⌊ (1.9) ⌋

081 J ⌈ ((*turns to C*)) ⌉ ⌈((*looking at C*))⌉

082 C |((*continues to look at VOCA*)) | | ((*looks at J*)) |

083 ⌊ (3.5) ⌋ ⌊ (0.8) ⌋

→ 084 C ⌈once

085 ⌊((*raises finger*))

086 J ⌈ ((*looking at C*)) ⌉ ((*turns to VOCA*))

087 C |((*looking at J finger raised*))|

088 ⌊ (4.1) ⌋

→ 089 C am I right

090 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

091 C | ((*looking at J*)) | | ((*looks at VOCA*)) |

092 ⌊ (0.7) ⌋ ⌊ (1.9) ⌋

→ 093 J ⌈*yes*

094 ⌊ ((*head turn slightly towards C, looks to C*))

→ 095 C ⌈ye:ah.!

096 ⌊((*leans back and raises both arms in celebration looking away*))

097 C ⌈how many times have Brazil⌉ ⌈won the world cup

098 | ((*looking ahead & to right*)) ⌋ ⌊ ((*looks at VOCA*

099 J ⌊((*head tilted and turned towards C*))

The sequence of turns considered here begins with Colin saying, "wu (.) now you ask me a question about football" (line 039). So, again, it is evident that it is Colin who initiates Jamal's production of a first pair part question with a meta-interactional command. This turn projects a strong relevance for what Jamal should do next and, importantly, how he should use his VOCA. This meta-interactional command also makes relevant the realisation of a further turn that Colin himself will take to answer the question and possibly a subsequent response from Jamal. Having set up a strong expectation for the structure, function and content of Jamal's next action Colin waits in silence while Jamal works with his VOCA. This reflects the organisation of the test question and answer exchanges.

At the TRP of Colin's command Jamal turns away from him and looks towards the VOCA (line 042). Simultaneously, Colin looks down at his hand resting on Jamal's wheelchair tray (line 043). The first VOCA bleep is heard 2.2 seconds later. Jamal's shifting gaze towards his VOCA and the subsequent bleep are the prototypical characteristics of pre-beginning elements of Jamal's turn. It is following the bleep that Colin looks up at the VOCA (line 043), making the VOCA the focus of the boys' joint attention. A further three bleeps are heard separated by pauses of 0.9 seconds (line 042), 4.2 seconds and 2.1 seconds (line 046) before the single word "***how***" is generated (line 046).

Interestingly, this sequential pattern of changing gaze direction after the first pre-beginning auditory signal of VOCA use is seen in extract 7 below (line 368). It is possible that, where Colin is not already looking at the VOCA, the first pre-beginning VOCA generated bleep subsequent to the TRP of the meta-interactional command has a particular status in bringing about a shift in Colin's gaze direction so

that the VOCA becomes the focus of his attention and he adopts a physical position in which he displays himself as the VOCA's addressee. It is true that a number of possible alternative actions are available as relevant for Colin here without necessarily altering the trajectory of the events underway. Indeed, in other similar sequential locations he is observed to look around the room and disengage from recipience of Jamal's turn actions. This analysis, then, explains one instance or realisation of events in the broader class of actions concerned with Colin's role as listener.

It is apparent that there is a significant delay in the progressivity (Schegloff, 1979) of the unfolding TCU. In the turn initial pause inhabited by pre-beginning elements of Jamal's turn this delay is not orientated to as problematic for the interaction. Within the context of the prior meta-interactional command, Jamal's physical action projects a recognisable direction for the talk, and Colin displays his orientation to this possibility by looking at VOCA and waiting, that is, orientating to the VOCA as the social locus of participation. However, it is notable that in this instance, and the examples presented below, delayed progressivity within the turn, that is, following the first VOCA generated spoken element of the turn, has consequences for the way in which the interaction is structured.

Jamal continues working with his VOCA and Colin continues to look at the device interface, and 3.0 seconds later a bleep is heard followed immediately by the single letter "***m***" (line 049). This episode of interaction is presented below in segment 6.1.

Segment 6.1 (J&C 049 – 058)

→	049	J	⌈((*orientated to VOCA*))⌉ ***m*** ⌈((*orientated to VOCA*))⌉
	050	C	| ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
	051		⌊ (3.0) ⌋ ⌊ (1.6) ⌋
→	052	C	how man⌈y: ⌈ ((*looking at VOCA*)) ⌉
→	053	J	⌊***a*** |((*orientated to VOCA*)) | ***n***
	054		⌊ (0.6) ⌋
→	056	J	⌈((*orientated to VOCA*))⌉ ***y*** ⌈ ((*notes from VOCA*))⌉ ⌈((*orientated to VOCA*))⌉
→	057	C	| ((*looking at VOCA*)) | ⌊ °how ma (.) ny° ⌋ | ((*looking at VOCA*)) |
	058		⌊ (0.4) ⌋ ⌊ (1.7) ⌋

It is noticeable that Jamal has altered the strategy of turn production from one in which he produces single words to one in which he uses single letters and a spelling strategy (also seen in Extract 8, line 153, page 118). Following the production of this VOCA generated speech Jamal continues to work with his VOCA and Colin continues to look at the VOCA interface. Then, 1.6 seconds after the letter "***m***" is produced Colin treats the turn as permeable. He enters Jamal's turn and the word in progress to provide a candidate projection of an, as yet, unspoken lexical element of the turn, saying, "how many:" (line 052). This action is spoken with a mid-low pitch within the first word, which rises slightly as Colin speaks "many:". Also, the final phoneme of "many:" is elongated. The VOCA generated bleep and letter "***a***" are produced in overlap with the final element of "many:". Interestingly, Colin continues to look at the VOCA before during and after the entry to the turn.

Entry into the ongoing turn space of the current speaker by an other participant in conversation has been documented in conversation between speaking participants, for example most generally on occasions of overlap (Sacks et al., 1974; Jefferson, 1983; Jefferson, 1986; Schegloff, 2000) in current speakers' word searches (Goodwin & Goodwin, 1986; Goodwin, 1987) and in anticipatory completion of the turn in progress (Lerner, 1996). Lerner's analysis of turn completion captures, most closely, something of the events taking place here: That is, "*a next speaker begins speaking before the projected completion of the TCU and thus within the projected turn space of the still current speaker*" (Lerner, 1996: 242). However, these descriptions of listener entry into the speaker's current turn do not reflect fully the nature of turn entry identified here.

The turn entry provides the possibility for the adoption of an alternative trajectory in the progression of the turn. It is possible that Jamal may seek to confirm or reject the validity of the candidate word completion "many:" (line 052). If the candidate is accurate any confirmation would remove the need to complete the word, and, most likely, increase the speed with which the turn progresses. However, the combined use of relatively flat pitch in the design of the "many:", elongation of the final phoneme and Colin's maintained orientation to the VOCA convey a sense that this entry is not necessarily designed to implicate Jamal's movement out of speakership in acceptance or rejection of the candidate, and neither does the entry appear to work

in competition with Jamal's turn. Rather, the entry works to display Colin as an active analyst of the unfolding turn structure and makes public how he is attuned to Jamal's actions of the moment and making use of the regularities provided by English syntax as a resource for entry into the turn. The relatively early entry also amounts to an epistemic claim on elements of the unfolding turn based perhaps on the early elements of his own prior test question "How many times have England won the World Cup." In addition, this action transforms the letter-by-letter practice of turn development into the more conventional word-by-word arrangement, conveying a sense of refreshing the start of the turn and updating the sequential context.

Jamal does not orientate to Colin's turn entry either through his VOCA or non-verbally. Rather, he pursues the VOCA mediated completion of the current word under construction, spelling out the letters "***n***" and "***y***" (lines 053 and 056). In so doing Jamal displays that he is not treating Colin's actions as a possible strategy for speeding up the production of his turn (Light, 1989) and that VOCA use is his preferred modality of communication.

On Jamal's completion of the spelled sequence ***m***, ***a***, ***n***, and ***y***, Colin enters the turn again with a repetition of "°how many°" (line 057) but with reduced volume and soft voice quality, relative to his last entry, and again he remains physically orientated to Jamal's VOCA. This second entry signals that he has heard the turn so far and recognised the spelling of "***many***"; that this element of turn development has been brought to completion and, consequently, that more VOCA mediated speech is due. Again, Jamal does not treat these actions as significant in terms of altering the trajectory of his own actions or the turn underway.

Following Colin's repetition: "°how many°", a pause extends for 1.7 seconds (line 056) during which time the boys are orientated to the VOCA. Colin then enters the turn for the third time saying, "times" (line 059). This extension of the turn so far in anticipation of the forthcoming element of Jamal's turn is initiated in overlap with a bleep generated by activation of a VOCA cell. It is also produced with a marked rise in pitch during its production and hence takes on the characteristics of a question.

Colin remains orientated to the VOCA and indeed leans closer to it, so that the action of turn entry is orientated towards the VOCA, and, as noted above in the analysis of his previous entries, in remaining orientated to the VOCA after the turn entry Colin locates himself as the addressee of the VOCA and the VOCA as the arbiter of the accuracy of his entry. That is, the next VOCA generated event will reveal the accuracy of Colin's guess. It is likely also that Colin can see some activity, such as moving lights, on the VOCA interface, which displays ongoing VOCA use in the activity of turn construction. It is evident then that there exists an asymmetry in knowledge about the VOCA itself and its use and Colin displays this asymmetry in his entry to the turn providing a candidate for the next element of the turn.

As the turn moves closer towards possible completion the relationship between Colin's entries and Jamal's turn in progress shifts to one in which Colin's actions are orientated to possible completion of the TCU. Following confirmation of the accuracy of the guess "times" (line 059) in the VOCA generated "***time***" (line 060) a pause of 1.1 seconds is evident before Colin enters the turn again. On this occasion, he builds syntactically on the turn produced so far, continuing it to project possible turn completion, saying, "has Brazil won" (line 064). This event, illustrated in segment 6.2 below, is distinct from his previous entries within his turn.

Segment 6.2 (J&C: 059 – 065)

→	059	C	⌈times ⌉
→	060	J	⌊* ⌋ * ***time***
	061	J	⌈((*orientated to VOCA*))⌉ *
	062	C	⌈ ((*looking at VOCA*)) ⌉
	063		⌊ (1.1) ⌋
→	064	C	⌈ has Bra ⌉ ⌈ zil ⌉ ⌈won
→	065	J	⌊((*orientated to VOCA*))⌋ ⌊***times***⌋ ⌊*

Like practices in anticipatory completion observed in naturally speaking adults' conversation (Lerner, 1996), this action provides for completion of the turn that is an alternative point of completion to the, as yet, un-arrived TRP, and sets up the possibility that Jamal's next action could be a response to the candidate closure of his turn. At the end of this entry he turns away from the VOCA to look directly at

Jamal. This action echoes Jamal's movement out of speakership at the TRP of his turn and brings about a new arrangement for the boys' participation. Colin moves away from the VOCA directed focus of attention to make relevant other possibilities for the interaction, including, for example, Jamal's physical orientation away from the VOCA, moving out of speakership, in alignment with Colin's projected TRP. However, Jamal remains orientated to, and working with, the VOCA. Again, he does not treat Colin's actions as sequentially implicative.

Jamal generates a self-initiated self repair (Schegloff et al., 1977) generating the grammatically more accurate word "***times***" in overlap with Colin's turn entry. As noted above (extract 5, lines 267 and 276, page 97), self-initiated self repair is a recurring feature of Jamal's VOCA mediated turns. Interestingly, this repair is one that addresses the grammatical realisation of a unit of the TCU, the accuracy of which is not crucial to the development of the meaning of the turn. Considering the time and effort taken to generate this VOCA mediated utterance and to produce the repair itself in the context of Colin's treatment of the turn as permeable, this action appears to be an unnecessary attention to the detail of the syntax. However, it is in generating full grammatically correct utterances that Jamal is able to display his competence in VOCA use and as a language user. It would seem, also, that for Jamal accuracy in grammatical form takes precedence over speed and efficiency of turn production. Jamal's use of the VOCA is not, then, concerned solely with speed of TCU production.

The next elements of the exchange are presented in segment 6.3 below. As the TCU continues to unfold Colin is faced with evidence that he has guessed ahead incorrectly.

Segment 6.3 (J&C: 066 – 099)

	066	J	⌈	*((orientated to VOCA))*	⌉ *	⌈*((orientated to VOCA))*⌉ *	
	067	C	|	*((looks at J & back to VOCA))*	|	| *((looking at VOCA))* |	
	068		⌊	(1.4)	⌋	⌊ (1.4) ⌋	
→	069	J	⌈	*((orientated to VOCA))*⌉ *	***has***	⌈*((orientated to VOCA))*⌉ *	
	070	C	|	*((looking at VOCA))*|		| *((looking at VOCA))* |	
	071		⌊	(1.0)	⌋	⌊ (0.8) ⌋	

→ 072 J ⌈((*orientated to VOCA*))⌉ * ***Mexico***
073 C | ((*looking at VOCA*)) |
074 ⌊ (1.1) ⌋
075 J ⌈((*orientated to VOCA*))⌉ ⌈*
→ 076 C |((*looking at VOCA*)) | ⌊qualified
077 ⌊ (2.8) ⌋
→ 078 J ⌈((*orientated to VOCA*))⌉ * ***won***
079 C | ((*looking at VOCA*)) |
080 ⌊ (1.9) ⌋
081 J ⌈ ((*turns to C*)) ⌉ ⌈((*looking at C*))⌉
082 C |((*continues to look at VOCA*))| | ((*looks at J*)) |
083 ⌊ (3.5) ⌋ ⌊ (0.8) ⌋
→ 084 C ⌈once
085 ⌊((*raises finger*))
086 J ⌈ ((*looking at C*)) ⌉ ((*turns to VOCA*))
087 C |((*looking at J finger raised*))|
088 ⌊ (4.1) ⌋
→ 089 C am I right
090 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
091 C | ((*looking at J*)) | | ((*looks at VOCA*)) |
092 ⌊ (0.7) ⌋ ⌊ (1.9) ⌋
→ 093 J ⌈***yes***
094 ⌊ ((*head turn slightly towards C, looks to C*))
→ 095 C ⌈ye:ah.!
096 ⌊((*leans back and raises both arms in celebration looking away*))
097 C ⌈how many times have Brazil⌉ ⌈won the world cup
098 | ((*looking ahead & to right*)) ⌋ ⌊ ((*looks at VOCA*
099 J ⌊((*head tilted and turned towards C*))

A consequence of guessing ahead is that Colin is required then to wait until his candidate projection is endorsed or not as part of Jamal's ongoing turn construction (particularly as Jamal does not give more immediate non-speech responses to these candidates), reducing the likelihood for further entry. The generation of "***has***" (line 069) matches Colin's projection and after 1.9 seconds Jamal produces "***Mexico***" (line 072) in contrast with Colin's projection. Following a further 2.8 seconds Colin enters the turn again and anticipates the final element of the turn for the second time,

on this occasion altering his initial candidate "won" to "qualified" (line 076). Interestingly, unlike the prior entry concerned with possible turn completion Colin remains orientated to the VOCA, implicating the VOCA as the source of the completion of the turn and the arbiter of the accuracy of the projection.

Jamal's VOCA mediated action following a guess by Colin does the interactive job of confirming or repairing Colin's actions, in addition to developing the turn. As such, each new element of the turn may implicate new possibilities for the talk. Colin's new candidate "qualified" (line 076) displays his collaborative orientation to the turn in progress and that an element of Colin's participation in the interaction is concerned with guessing ahead correctly.

Colin is unable to predict the frequency and size of pauses within Jamal's turns. Although their occurrence is defined by the fact that Jamal is using his VOCA, the number and size of individual pauses within a turn are not sequentially defined, that is, in the same way for example that syntax defines, in a broad sense, what word might reasonably come next. When Colin enters the turn and guesses at what word or words might come next he alters the likelihood of speaking again until much of the guess is confirmed or rejected by Jamal's ongoing turn production. In this way the pauses immediately subsequent to Colin's turn entry are less susceptible to entry by Colin. Thus, Colin's turn entry alters the status of pauses coming immediately next, reducing their permeability.

On completing his turn Jamal turns away from the VOCA and towards Colin, moving out of possible speakership, an unequivocal signal of turn completion. Over the next 3.5 seconds Colin remains orientated towards the VOCA (line 082), he then looks at Jamal and answers the question saying, "once" and raising a single finger (line 084).

Jamal then turns to his VOCA and, again perhaps in anticipation of VOCA use, Colin makes explicit his expectation that Jamal might provide a third turn response to his question saying, "am I right" (line 089). Over the next 2.6 seconds two bleeps are heard before Jamal generates this response saying, "***yes***" (093), and moving his head orientation out of speakership. Jamal then uses his VOCA to respond to Colin's

answer in preference to other possible non-verbal means of responding. As seen above (extract 2, line 106, page 84) Colin celebrates the accuracy of the answer cheering, "yeah", leaning back in his chair and raising his arms (line 095/6). Here, the VOCA becomes the arbiter of Colin's answers. It is only after Jamal uses his VOCA to respond to the question, an activity that may be achieved more quickly by non-verbal action, that Colin celebrates. In this way the VOCA takes on the role of an umpire or social mediator within the context of the boys' game of test questions. In this context, it appears that the VOCA is portrayed in an additional and different role to that of a device provided as an alternative modality to speech.

A further example of Colin's use of a meta-interactional command making relevant a question next, the expansion of a turn initial pause and Colin's treatment of the turn underway as permeable is provided in extract 7 below. This example differs from the examples presented in extracts 5 and 6 in that, in this instance, Colin experiences difficulty identifying accurately the TRP of Jamal's turn.

Extract 7 (J&C: 358 – 426)

→	358	C	⌈um: now I'm gonna as⌉ ⌈k <u>you</u> a quest'n ⌉ ⌈ (.) ⌉
	359		| *((looking at VOCA))* | | *((looks at J))* | | *((lifts hand to point))* |
	360	J	⌊ *((orientated to VOCA))* ⌋ ⌊ *((orientated to VOCA))* ⌋ ⌊ * ⌋
→	361	C	⌈ now you ask ⌉ ⌈ me ⌉
	362		| *((reaching forward, glances down))* | | *((reaches full extension of point to J's chest, looking at J))* |
	363	J	⌊ *((orientated to VOCA))* ⌋ ⌊ *((orientated to VOCA))* ⌋
→	364	C	⌈ a question ⌉
	365		| *((drops hand to w'chair tray, looks down at w'chair tray))* |
	366	J	⌊ *((orientated to VOCA))* ⌋
→	367	J	⌈*((orientated to VOCA))* ⌉ *⌈*((orientated to VOCA))* ⌉ * ***do***
	368	C	| *((looking down))* | | *((looks up at VOCA))* |
	369		⌊ (4.6) ⌋ ⌊ (1.4) ⌋
	370	J	⌈ *((turns to window))* ⌉
	371	C	| *((looking at VOCA, tilts head towards VOCA))* |
	372		⌊ (2.2) ⌋
→	373	C	⌈do I know your second name⌉
	374		⌊ *((looking at VOCA))* ⌋

375 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
376 C | ((*looking at J*)) | | ((*looking at J*)) |
377 ⌊ (2.5) ⌋ ⌊ (3.1) ⌋
378 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
379 C | ((*turns to look at VOCA*)) | | ((*looking at VOCA*))|
380 ⌊ (1.4) ⌋ ⌊ (1.2) ⌋
381 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
383 C | ((*looking at VOCA*))| | ((*looking at VOCA*))|
384 ⌊ (1.4) ⌋ ⌊ (3.7) ⌋
→ 385 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***friday***
386 C | ((*looking at VOCA*))| |((*looking at VOCA*)) |
387 ⌊ (1.4) ⌋ ⌊ (1.2) ⌋
→ 388 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***do you***
389 C |((*looking at VOCA*)) | | ((*looking at VOCA*)) |
390 ⌊ (1.2) ⌋ ⌊ (0.9) ⌋
→ 391 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***play***
392 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
393 ⌊ (1.4) ⌋ ⌊ (1.5) ⌋
→ 394 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***football***
395 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
396 ⌊ (0.8) ⌋ ⌊ (1.9) ⌋
397 J ⌈((*orientated to VOCA*))⌉ * ⌈ ((*orientated to VOCA*)) ⌉
→ 398 C | y: e: | | a: h: ! |
399 |((*punches air and orient| ates | body to J, looking at him*))|
400 ⌊ (1.8) ⌋ ⌊ (1.1) ⌋
→ 401 J *⌈ ((*orientated to VOCA*)) ⌉ * (***here / near***)
402 C | ((*looks from J to VOCA*))|
403 ⌊ (1.3) ⌋
→ 404 C ⌈ the ⌉ park
405 J |((*orientated to VOCA*))| *
406 |((*looking at VOCA* |
407 ⌊ (1.8) ⌋
→ 408 J ⌈((*orientated to VOCA*))⌉ * ***after***
409 C | ((*looking at VOCA*)) |
410 ⌊ (2.9) ⌋

411 J ⌈((*orientated to VOCA*))⌉ *
412 C |((*looking at VOCA*)) |
413 ⌊ (1.2) ⌋
→ 414 C ⌈ school ⌉
415 | ((*looking at VOCA*)) |
416 J ⌊ ((*orientated to VOCA*)⌋
→ 417 J * ((*eye-gaze drops from VOCA*)) ***school*** =
418 J ((*head moves down and tilts towards C*))
→ 419 C ⌈ yep ⌉
420 | ((*nods still looking at VOCA*)) |
421 J ⌊ ((*orientated towards C*)) ⌋
422 C ⌈((*nods turning to look at J*))⌉
423 ⌊ (0.9) ⌋
→ 424 C ⌈ I do ⌉
425 | ((*looking at J*)) |
426 J ⌊((*orientated towards C*)) ⌋

At the start of this extract Colin issues a meta-interactional command saying "um now I'm gonna ask you a question (.) now you ask me a question" (line 358). This turn is designed in a very similar way to those examined in extracts 5 (line 265, page 97) and 6 (line 039, page 100). In this instance Colin initially makes a public claim to ask Jamal a question. During this time Jamal has been orientated to the VOCA and just at the TRP of this first meta-interactional statement a VOCA bleep is generated. Immediately on the back of this bleep Colin changes tack, asking Jamal to ask him a question. This new turn displays Colin's expectations for how the sequence of turns should develop and Jamal's role in that sequence including how the VOCA will be used. This meta-interactional command is similar to that discussed in extract 5, but is unlike the example in extract 6, in that here Colin does not make explicit his expectation for the content of the next turn.

During this command Colin points at Jamal so that at the moment he says the word "me" Colin reaches the full extension of the point (line 362). His hand then drops to the wheelchair tray and in parallel with the final element of the command, "a question", Colin looks down at Jamal's wheelchair tray (line 365). A turn initial pause of 4.6 seconds is evident before a VOCA bleep is heard. Like each example

above Colin remains silent during this time. As seen in extract 6 (lines 042 and 043), following the first pre-beginning VOCA generated bleep after the TRP of Colin's meta-interactional command Colin looks up at the VOCA in anticipation of a VOCA mediated utterance (lines 367 and 368), making the VOCA the shared focus of the boys' gaze.

A second pre-beginning bleep is heard 1.4 seconds later and directly after the second bleep Jamal generates the single word "***do***" (line 367). He then looks down and to his left, away from the VOCA and away from Colin. This single word confirms that Jamal is orientating to Colin's expectations for the development of events set up in the meta-interactional command. However, Jamal's movement away from the VOCA is more indicative of an end of turn signal. Colin is looking at the VOCA at this point and it is uncertain whether or not he sees Jamal move out of speakership. What is clear is that he tilts his head towards the VOCA slightly saying, "do I know your second name" (line 373), and, as seen in extract 6 (line 067, page 101), following this candidate completion he looks at Jamal.

This is another example of Colin's treatment of Jamal's turn underway as permeable and an anticipatory completion of the turn. In this instance Colin enters the turn at the earliest point after its start. When the first element of Jamal's turn matches his own prior question Colin makes a guess at the content of the remainder of Jamal's turn and the TRP based on the design of his prior question. The post-beginning onset of anticipatory turn completion is notably early within this conversation. It seems that structure provided by the series of repeating themes used in questions and the intra-turn pauses inherent in VOCA use provide very specific conversational context in which such early anticipation is possible.

At the TRP of this turn entry Jamal orientates back to the VOCA and over the next 5.6 seconds, a pause punctuated by two bleeps, Colin retains his gaze on Jamal. Segment 7.1 illustrates this event and subsequent turns.

Segment 7.1 (J&C: 373 – 403)

→	373	C	⌈do I know your second name⌉
	374		⌊ *((looking at VOCA))* ⌋
	375	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))* ⌉ *
	376	C	| *((looking at J))* | | *((looking at J))* |
	377		⌊ (2.5) ⌋ ⌊ (3.1) ⌋
	378	J	⌈*((orientated to VOCA))* ⌉ * ⌈*((orientated to VOCA))* ⌉ *
	379	C	|*((turns to look at VOCA))* | | *((looking at VOCA))* |
	380		⌊ (1.4) ⌋ ⌊ (1.2) ⌋
	381	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))* ⌉ *
	383	C	| *((looking at VOCA))*| | *((looking at VOCA))* |
	384		⌊ (1.4) ⌋ ⌊ (3.7) ⌋
→	385	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ * ***friday***
	386	C	| *((looking at VOCA))*| | *((looking at VOCA))* |
	387		⌊ (1.4) ⌋ ⌊ (1.2) ⌋
→	388	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ * ***do you***
	389	C	|*((looking at VOCA))* | |*((looking at VOCA))* |
	390		⌊ (1.2) ⌋ ⌊ (0.9) ⌋
→	391	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ * ***play***
	392	C	|*((looking at VOCA))* | |*((looking at VOCA))* |
	393		⌊ (1.4) ⌋ ⌊ (1.5) ⌋
→	394	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))* ⌉ * ***football***
	395	C	|*((looking at VOCA))* | |*((looking at VOCA))* |
	396		⌊ (0.8) ⌋ ⌊ (1.9) ⌋
	397	J	⌈*((orientated to VOCA))* ⌉ * ⌈ *((orientated to VOCA))* ⌉
→	398	C	| y: e: | | a: h: ! |
	399		|*((punches air and orient| ates | body to J, looking at him))*|
	400		⌊ (1.8) ⌋ ⌊ (1.1) ⌋
→	401	J	*⌈ *((orientated to VOCA))* ⌉ * (***here / near***)
	402	C	| *((looks from J to VOCA))*|
	403		⌊ (1.3) ⌋

A total period of 15.9 seconds (lines 375-385) passes between the TRP of Colin's entry and Jamal's next VOCA mediated utterance "***Friday***" (line 385). This pause is punctuated by eight VOCA generated bleeps. Following the second bleep in this series Colin looks at the VOCA (line 379) and he continues to look at the VOCA

while Jamal continues to work with the device. After producing the single word "***Friday***" a pause of 2.1 seconds is evident before he generates "***do you***" (line 388), in an apparent re-start of the turn.

Jamal's actions in apparently restarting the turn represent self-initiated self repair (Schegloff et al., 1977). In returning to the initial element of his turn "***do***" it is possible that Colin may treat "***Friday***" as signalling a change in relationship of the current turn to the prior talk. By marking Colin's anticipatory completion (Lerner, 1996) as inaccurate, and signalling the possibility of a new trajectory for the turn underway, "***Friday***" makes a further early turn entry in projection less achievable by removing the content of Colin's prior question as a relevant resource.

Subsequently, Colin remains looking at the VOCA without speaking while Jamal generates the next two elements of his turn "***play***" (line 391) and "***football***" (line 394). It is at this point that Colin enters the turn space for the third time locating this point as the end of Jamal's TCU by cheering, "yeah", punching the air and looking at Jamal (lines 398 and 399). However, just at the end of his cheer a VOCA generated bleep is heard (line 401) and on seeing Jamal still orientated towards and working with his VOCA Colin directs his own gaze back to the device, and 1.3 seconds later Jamal generates another VOCA mediated element of the turn. It is not possible from the video recording to hear accurately whether this next element of the turn is the word "***near***" or "***here***" (line 401).

Speaker initiation before the TRP is not a particularly uncommon event in conversation between naturally speaking participants (Jefferson, 1983; Jefferson, 1986), although typically at such times overlapping talk is evident and a resolution is achieved quickly (Schegloff, 2000). In this conversation, one further consequence of the delayed progressivity of the VOCA mediated turn is revealed in Colin's difficulties in judging the TRP accurately. In this instance Colin orientates to the possibility of the TRP occurring here by referring to syntactic structure of the turn so far, "***Friday do you play football***", and its 'fit' with the meta-interactional command to the turn. However, Jamal does not physically signal movement out of speakership and a VOCA bleep signalling ongoing VOCA use is heard at the end of Colin's cheer.

In the discussion of Colin's use of test questions it was proposed that one outcome of this form of first pair part is that they set up single word answers that project the TRP of the answer turn unequivocally (e.g., extract 1, line 033, extract 2, line 122). It would seem that the type of difficulty identified here provides evidence for the operational benefits gleaned by Colin setting up VOCA turns of pre-determined form.

One final point of interest here concerns Colin's cheer. It is evident that this type of turn displays his orientation to the interaction as a form of game, and this has been seen on two occasions previously (extract 3, line 534 and extract 5, line 095).

Following Jamal's VOCA mediated utterance "***near / hear***"(line 401) another pause is evident. Colin now enters the turn for the fourth time, on this occasion saying, "the park" (line 404), and a bleep is heard in overlap with the word "park". These features are reproduced in segment 7.2 below.

Segment 7.2 (J&C: 401 – 426)

→	401	J	*⌈ ((*orientated to VOCA*)) ⌉ * (***here / near***)
	402	C	| ((*looks from J to VOCA*)) |
	403		⌊ (1.3) ⌋
→	404	C	⌈ the ⌉ park
	405	J	| ((*orientated to VOCA*)) | *
	406		| ((*looking at VOCA* |
	407		⌊ (1.8) ⌋
→	408	J	⌈((*orientated to VOCA*))⌉ * ***after***
	409	C	| ((*looking at VOCA*)) |
	410		⌊ (2.9) ⌋
	411	J	⌈((*orientated to VOCA*))⌉ *
	412	C	| ((*looking at VOCA*)) |
	413		⌊ (1.2) ⌋
→	414	C	⌈ school ⌉
	415		| ((*looking at VOCA*)) |
	416	J	⌊ ((*orientated to VOCA*)⌋
→	417	J	* ((*eye-gaze drops from VOCA*)) ***school*** =

	418	J	((*head moves down and tilts towards C*))
→	419	C	⌈ yep ⌉
	420		⌊ ((*nods still looking at VOCA*)) ⌋
	421	J	⌊ ((*orientated towards C*)) ⌋
	422	C	⌈((*nods turning to look at J*))⌉
	423		⌊ (0.9) ⌋
→	424	C	⌈ I do ⌉
	425		⌊ ((*looking at J*)) ⌋
	426	J	⌊((*orientated towards C*))⌋

Due to the uncertainty concerning Jamal's prior utterance it is unclear how Colin's entry here relates to the prior turn. Nevertheless the central notable point is the widespread permeability of Jamal's turn. This pattern of turn entry continues as 2.9 seconds later Jamal generates the next element of his turn saying, "***after***" (line 408) and 1.2 seconds later a bleep is heard at which point Colin enters the turn for the fifth time, this time guessing at the next possible lexical item and possible completion of the turn saying, "school" (line 414). Just after this entry a bleep is heard (line 417) and Jamal generates what turns out to be the final element of his turn "***school***" (line 417), confirming Colin's projection as accurate and making public the boys' mutual understanding of the moment. In the moments between this last bleep and the generation of this word Jamal drops his eye-gaze away from the VOCA (line 417), and after the word is produced his head tilts down and away from the device (line 418). Colin then answers the question, saying "yep" (line 419). Interestingly, Colin answers "yep" while still looking at the VOCA, directing his answer to the device and not to Jamal. He then turns to Jamal nodding and says "I do" (line 424) and the boys look at each other.

This last extract illustrates further the core features of Jamal's VOCA mediated questions, namely: Colin's use of a meta-interactional command to set up Jamal's turn and VOCA use in the next turn; the turn initial pause and Colin's subsequent entry into that turn following Jamal's production of the first spoken element of the turn. This example differs slightly again from the previous examples and displays different type of problems in interaction.

Extract 8 (J&C 127 – 203)

→ 127 C how (.) now⌈you ask me a question⌉
128 ⌊ ((*points at J*)) ⌋
129 C ⌈ ((*looks up fixing gaze on VOCA momentarily before J*)) ⌉
130 J |((*looks up at VOCA momentarily after C, lifts head slowly and orientates infra red pointer to VOCA*))|
131 ⌊ (1.8) ⌋
☎ 132 (first pair of pulsed rings heard from phone) ☎ (.)☎
133 J ⌈*
→ 134 C |[ʊ:] ⌉
135 ⌊((*turns to J*))⌋
136 J ⌈((*orientated to VOCA*))⌉
→ 137 C | ((*looking at J*)) | that phone
138 ⌊ (0.4) ⌋
139 J ⌈((*orientated to VOCA*))⌉ *
140 C | ((*looks forward*)) |
141 ⌊ (0.7) ⌋
142 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*)) ⌉ *
143 C | ((*looking forward*)) | |((*glancing to and from VOCA*))|
144 ⌊ (1.7) ⌋ ⌊ (2.3) ⌋
→ 145 J ⌈((*orientated to VOCA*)) ⌉ * ***how*** ⌈ ((*orientated to VOCA*)) ⌉
146 C |((glancing to and from VOCA))| |((*head orientated forward eyes looking up at VOCA, frowning*))|
☎ 147 | | | (musical tones heard from phone) |
☎ 148 ⌊ (1.4) ⌋ ⌊ (5.0) ⌋
☎ 149 J ⌈ ((*orientated to VOCA*)) ⌉
☎ 150 C |((*leans to'rd J & orientates to VOCA*))|
☎ 151 ☎ | the other person has hung up |
☎ 152 ⌊ (VOCA bleeps masked by phone) ⌋
→ ☎ 153 J * ***m*** ⌈((*orientated to VOCA*))⌉ * ***u*** ⌈((*orientated to VOCA*))⌉ * ***c***
☎ 154 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
☎ 155 ⌊ (1.1) ⌋ ⌊ (1.4) ⌋
→ ☎ 156 J ⌈((*orientated to VOCA*))⌉ * ***h*** ⌈((*orientated to VOCA*))⌉ * ***how much***
☎ 157 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
☎ 158 ⌊ (0.4) ⌋ ⌊ (1.2) ⌋
☎ 159 J (musical tones heard from VOCA) ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
☎ 160 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
☎ 161 ⌊ (0.6) ⌋ ⌊ (0.4) ⌋

☎ 162 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

☎ 163 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |

☎ 164 ⌊ (1.5) ⌋ ⌊ (1.0) ⌋

165 ((*telephone stops ringing*))

166 J * ⌈((*orientated to VOCA*))⌉

167 C |((*looking at VOCA*)) |

168 ⌊ (1.8) ⌋

169 J ⌈((*orientated to VOCA*))⌉ *

170 C ⌊((*looking at VOCA*)) ⌋

→ 171 C ⌈ how ⌈ much what

172 ⌊((*looking at VOCA*)) |((*looking at VOCA*))

173 J ⌊*

174 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

175 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |

176 ⌊ (0.5) ⌋ ⌊ (1.6) ⌋

177 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉

178 C |((*looking at VOCA*)) | | ((*looking at VOCA*)) |

179 ⌊ (1.5) ⌋ ⌊ (1.2) ⌋

180 J ⌈*

→ 181 C |ho:w ⌉ ⌈m:uch⌉ ⌈ w:hat ⌉

182 ⌊((*nod*)) ⌋ ⌊((*nod*))⌋ ⌊((*nod*))⌋

→ 183 J ⌈((*orientated to VOCA*))⌉ ***old*** ⌈((*orientated to VOCA*))⌉

184 C | ((*turns to J smiling*)) | | ((*looking at J*)) |

185 ⌊ (0.3) ⌋ ⌊ (1.3) ⌋

→ 186 C ⌈ how ⌈much ⌉ ⌈hold ⌈ (sniffs)

187 ⌊((*glances* | *down*))⌋ ⌊((*looks at J*)) ⌊((*looks up at VOCA*))

188 J ⌊*

→ 189 J * ***am I*** (0.6) *⌈***how old** ⌈***am I***

190 |((*turns head* | *towards C smiles*))

191 C ⌊ how old ⌊((*looks at J*))

192 (1.2)

→ 193 J ⌈eight

194 C ⌊((*points at J*))

195 J ⌈((*looking at C orientates to VOCA*)) ⌉

196 C |((*looking at J turns to look at VOCA*))

197 ⌊ (6.6) ⌋

→	198	J	⌈((*orientated to VOCA*))⌉ * ***yes***
	199	C	⌊ ((*looking at VOCA*)) ⌋
	200		⌊ (2.2) ⌋
→	201	C	⌈yea:::h⌈h. ⌉ um
	202		⌊((*punc ⌊ hes air*))⌋
	203	J	⌊ *

As seen in the prior extracts Colin organises Jamal's production of a question by explicitly steering the interaction to that possibility. In this instance Colin says "how (.) now you ask me a question" (line 127). Again, this meta-interactional command makes explicit Colin's expectations for how the interaction should move forwards, that is, how Jamal should take a turn at asking Colin a question. In this instance Colin does not suggest a theme for the question.

Colin looks at the VOCA immediately on completing his meta-interactional command. Indeed, his gaze reaches the VOCA moments before Jamal's. In extract 6 (line 043) and extract 7 (line 366), Colin is observed to look at the VOCA following the first bleep from the VOCA after the TRP of Colin's turn signalling VOCA use.

One point eight seconds after the TRP of Colin's turn the telephone starts to ring and Colin is heard to comment on this saying "ou (0.4) that phone" (lines 134 and 137). In this instance Colin enters Jamal's turn initial pause to comment verbally on the telephone and in so doing he looks directly at Jamal. This action is unlike other turn entries. It serves to illustrate that the permeability of Jamal's turns may extend to the pre-beginning period. Jamal adopts his normal strategy in such instances and does not shift his gaze form the VOCA but continues building the turn.

After 4.7 seconds Jamal generates the first element of his turn "***how***" (line 145). Just after this three musical tones are heard from the telephone and a recorded voice is heard to say, "the other person has hung up" (line 151). Jamal has orientated to his VOCA and Colin is seen to shift his gaze to the VOCA at this time. As seen in extract 6 (line 049) Jamal adopts a spelling strategy. And again, each letter is preceded by a pause, of variable length, and a bleep. Jamal spells out the word "***m u c h***", and 1.2 seconds after the final letter he regenerates the full turn so far saying,

"***how much***" (line 156). During this time Colin looks at the VOCA. A pause of 5.3 seconds then opens up as Jamal continues working with his device. This pause is punctuated by six bleeps at intervals of 0.6, 0.4, 1.5, 1.0 and 1.8 seconds. The telephone stops ringing between the fifth and sixth bleep. One further bleep is heard before Colin enters the turn saying, "how much what" (line 171), and, typical of many of these actions, he remains looking at the VOCA. It is notable that the telephone rings in regular, frequent and projectable pulse-bursts. It seems that Colin monitors for the completion of this sound before entering Jamal's turn (Jefferson, Sacks & Schegloff, 1987). Colin's turn entry is different from those described above. In this instance the action is designed as a turn in its own right rather than an element or elements of a turn in progress. Moreover, syntactically, "how much what" is an other-initiation of repair (Schegloff et al., 1977).

This entry signals that he has heard the turn so far recognising that the turn is not complete and adds a question word, "what". More specifically, Colin locates the trouble source as a delay in the progression of the elements of the turn and his difficulty in projecting the next element of the turn, in part related to the fact that he is unable to use the syntactic form of his own prior question "how old am I" examined above (extract 2 line 116) as a guide to the form of Jamal's slowly unfolding turn. That is, he is unable to use the sequential context as a resource to aid his understanding of the emerging turn. As such, this is one occasion where delayed progressivity is orientated explicitly to as problematic, and Colin makes public his difficulty in projecting the next elements of the turn.

In repeating the syntax of the turn so far and adding the "what" element in the projected slot for the next element of the turn construction unit (TCU) in progress, Colin allows Jamal to satisfy the demands of the question by continuing with the projected course of the TCU so that the next relevant element of the TCU is the unit that fills the slot made publicly problematic by Colin's use of "what". This supposition is supported by the fact that he remains looking at the VOCA, orientating to it as the recipient of his action. It is notable also, that, as seen in extracts 6 and 7 above, Colin does not orientate to this entry into his turn. This represents a new way that Colin demonstrates the permeability of the turn.

Following this turn entry a pause of 4.8 seconds comes about. Four bleeps are heard within this pause in a series separated by periods of 0.5, 1.6, 1.5 and 1.2 seconds, and during this time Colin looks at the VOCA while Jamal works with it. These features are represented below in segment 8.1.

Segment 8.1 (J&C: 171 – 203)

→	171	C	⌈ how ⌈ much what
	172		⌊ ((*looking at VOCA*)) |((*looking at VOCA*))
	173	J	⌊*
	174	J	⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
	175	C	|((*looking at VOCA*)) | |((*looking at VOCA*)) |
	176		⌊ (0.5) ⌋ ⌊ (1.6) ⌋
	177	J	⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉
	178	C	|((*looking at VOCA*)) | | ((*looking at VOCA*)) |
	179		⌊ (1.5) ⌋ ⌊ (1.2) ⌋
	180	J	⌈*
→	181	C	|ho:w ⌉ ⌈m:uch⌉ ⌈ w:hat ⌉
	182		⌊((*nod*)) ⌋ ⌊((*nod*))⌋ ⌊((*nod*))⌋
→	183	J	⌈((*orientated to VOCA*))⌉ ***old*** ⌈((*orientated to VOCA*))⌉
	184	C	| ((*turns to J smiling*)) | | ((*looking at J*)) |
	185		⌊ (0.3) ⌋ ⌊ (1.3) ⌋
→	186	C	⌈ how ⌈much ⌉ ⌈hold ⌈ (sniffs)
	187		⌊((*glances* | *down*))⌋ ⌊((*looks at J*)) ⌊((*looks up at VOCA*))
	188	J	⌊*
→	189	J	**** am I*** (0.6) ****⌈how old ⌈am I***
	190		|((*turns head* | *towards C smiles*))
	191	C	⌊ how old ⌊((*looks at J*))
	192		(1.2)
→	193	J	⌈eight
	194	C	⌊((*points at J*))
	195	J	⌈((*looking at C*)) ((*orientates to VOCA*)) ((*orientated to VOCA*))⌉
	196	C	|((*looking at J*)) ((*looking at J*)) ((*turns to look at VOCA*))|
	197		⌊ (6.6) ⌋
→	198	J	⌈((*orientated to VOCA*))⌉ **** yes***
	199	C	| ((*looking at VOCA*)) |
	200		⌊ (2.2) ⌋

→ 201 C ⌈yea:::h⌈h. ⌉ um
202 ⌊((*punc | hes air*))⌋
203 J ⌊ *

Colin then enters the turn for the second time repeating his first entry saying again, "ho:w m:uch w:hat " (line 181). A bleep is heard to sound in overlap with the first word of this entry. Each word is produced with a harder attack on the initial phoneme and the first vowel is very slightly elongated in comparison with the production of the first entry. Each word is also accompanied by a nod and is produced slightly more slowly. This action recycles the interactive work of the first entry and brings with it a renewed emphasis on the delayed progressivity of the turn. On this occasion, at the TRP of the turn entry, Colin turns to Jamal smiling (line 184). In smiling he downplays his difficulties with the turn (Glenn, 2003), and 0.3 seconds after this second entry Jamal generates the single word "***old***" (line 183).

Colin remains looking at Jamal, and 1.3 seconds later he speaks again saying "how much hold" (line 186). This is a further example of other initiated repair, and Colin locates the trouble source as the word "hold". Colin displays problems on two fronts. First, he mistakes the VOCA's synthesised speech hearing the word as "hold" rather than "old". Secondly, this element is syntactically incompatible with the elements of the turn so far. As usual, Jamal continues with his turn development and does not orientate to Colin's entry and the next element "***am I***" (line 189) comes immediately on the heels of Colin's entry.

Following a relatively short pause of 0.6 seconds he speaks a complete turn "***how old am I***" (line 189) and he turns away from this VOCA towards Colin. This physical movement provides an unequivocal departure from the operational procedure of VOCA mediated turn development.

Colin speaks "how old" in overlap with Jamal's utterance at this point, and it is Colin who retreats from the overlap. The full question "***how old am I***" (line 189) is produced as a complete utterance and Colin answers the question without returning to the source of trouble implicitly treating the utterance as a suitable repair. Arguably, it is this re-doing of the whole TCU in real time that is sensitive to the

other-initiated repair and reveals that Jamal was engaged in a self-initiated self repair whereby spelled element of the turn "***m u c h***" is not evident in the final question. (This strategy is observed in one other example discussed below, see extract 9, page 127).

Jamal is conducting self-repair to elements of the TCU as the turn unfolds but Colin is not aware of this. In this way the boys are orientating to asymmetrical paths for the progression of the interaction, with Colin orientating to outdated elements of the turn. Then, 1.2 seconds after the TRP of Jamal's turn Colin answers the question saying "eight" (line 193). Jamal then orientates to the VOCA and 6.6 seconds later provides a VOCA mediated response "***yes***" (line 198). Colin celebrates his success saying "yeah" (line 201), again evoking the game like aspect of the interaction, and locating the VOCA as the umpire and hence a social agent within the game.

5.2.1 Summary

It is clear that Jamal's VOCA and his skills in VOCA use have provided a mechanism with which he can make expansive and active contributions to the conversation. While this is certainly true, it is Colin who is observed to organise VOCA use in this way, and he does this through the use of meta-interactional commands. That is, an evocation of the structure of the talk that makes public his expectations for how Jamal should take the next turn and how his VOCA should be used in such a turn, indeed, on one occasion this includes the theme of the VOCA turn (extract 6, line 039, page 100).

Invariably, these commands bring about a VOCA mediated question in the next turn, which is characterised by a turn initial pause in which Jamal prepares to ask the question. Next, Colin answers the question. In two of the examples (extracts 6 and 8) Jamal produces a VOCA mediated third turn response, in arbitration of the answer and Colin celebrates his success in answering the question successfully in the fifth turn of the sequence. The game like quality of these sequences evoked in Colin's celebrations is seen also in Colin's actions following Jamal's answer to a test question (see extract 2, page 84 and extract 3, page 88).

Turns produced through Jamal's exploitation of his VOCA are generated at a considerably slower rate than spoken language, and are characterised by multiple, lengthy pauses. Consequently, VOCA mediated turns lack the progressivity (Schegloff, 1979) of spoken utterances. It is a noticeable characteristic of the conversation that, having prompted Jamal's VOCA use in the generation of a question, Colin does not wait for Jamal to compete the question before speaking again. Rather, Colin treats the multiple intra-turn pauses inherent in VOCA use as opportunities to speak, treating the VOCA turn as permeable. The theme of the prior question, the movement of the turn towards completion and Jamal's use of the organisational structure provided by spoken English syntax, offer Colin resources for the design of turn entries. Colin's actions may be concerned with turn progression, whereby his turn entry projects as yet unspoken lexical or syntactic elements. Alternatively, Colin's entry into Jamal's turn can be a resource for turn taking through projected lexical or syntactic completion of the turn.

It is notable that Jamal does not orientate to the new possible trajectories for the interaction bought about by Colin's turn entry but he continues building his turns letter-by-letter or word-by-word, displaying himself as a competent VOCA and language user.

It is clear that the primary mediating structure of conversational interaction in this conversation is the recurring orientation to and use of adjacency pairs. Colin is seen to take action to bring about this form of organisation. Colin's actions in turn entry within Jamal's construction of questions have revealed some problematic issues for the boys in VOCA use including misalignment with possible TRP, mishearing a VOCA mediated word and difficulty in identifying the relevance of the turn elements as they are slowly revealed. Nevertheless these issues are resolved. One resource that supports the resolution of these difficulties is Colin's meta-interactional expression of his expectations for the type of turn that Jamal will take. That is, having made explicit his expectations that Jamal's first pair part will be a question, any problematic issues within that turn construction are treated with the proviso that the outcome of the VOCA actions will be a question.

In using the VOCA Jamal physically orientates to it, turning away from Colin and looking at the device interface. Colin may also look at the device during Jamal's turn construction. At these times the VOCA becomes the location of the boys' shared attention and its use shapes the boys' physical alignment. On the two occasions (extract 6 and extract 8), Jamal uses his VOCA to pass judgment on Colin's answers and Colin celebrates answering correctly with cheers and raising his arms or punching the air. Colin's use of cheers more generally in this conversation displays his orientation to the test question activity as a type of game. In using the VOCA to adjudicate on Colin's answers, and in releasing the celebration after the VOCA generated response, the VOCA is portrayed as the game's umpire. At such times the VOCA takes on the role of a social object beyond a machine provided as an alternative to speech.

5.3 Diverging from adjacency pairs

One significant finding from the analysis of this conversation is that the consistent structure of adjacency pair exchanges introduced by Colin provides him with a structural framework for organising VOCA use. Colin's orientation to an adjacency pair exchange format as the primary mechanism for conversational progression can also present a problem for the interaction. The following example documents an episode of interaction right at the end of the recording before an adult enters the room. In it, a rift develops in the boys' mutual understanding as Colin struggles to make sense of the content and function of Jamal's VOCA mediated turn.

Extract 9 presented below is a continuation of extract 3, discussed earlier. Consequently the early stages of the exchange will be outlined briefly before the analysis considers the detail of the particular exchange of interest here. As above, the whole extract will be presented first and relevant segments represented within the body of the text. In the initial stages of this extract Colin issues the command "tell me your best song" (line 521); he then offers a candidate response saying "is it Asha" (line 528); Jamal responds 2.4 seconds later generating the phrase "***Asha you make me wanna***" (line 530) and Colin receipts this action and at the same time issues a further command, setting up a specific context for Jamal's next actions by

saying, "yeah sing it" (line 534). It is relevant to note here that the VOCA can be used to produce songs which are automatically sung in their entirety so that Colin's command here is not as unusual as it at first might sound.

Extract 9 (J&C: 521 – 675)

	521	C	tell me your best song
	522	J	⌈*((orientates to VOCA))*⌉ *
	523	C	| *((looking at J))* |
	524		⌊ (2.1) ⌋
	525	J	⌈*((orientated to VOCA))*⌉ *
	526	C	| *((looking at J))* |
	527		⌊ (2.9) ⌋
	528	C	⌈ i s i t ⌈Asha
	529	J	⌊ *((orientated to VOCA))* ⌊*
	530	J	⌈*((orientated to VOCA))*⌉ * ***Asha you make me wanna***
	531	C	| *((looking at J.))* |
	532		⌊ (2.4) ⌋
	533		(0.8)
→	534	C	yeah sing it
	535	J	⌈*((orientates to VOCA))*⌉ * ⌈*((orientated to VOCA))* & (vocalises)⌉ *
	536	C	| *((looks at VOCA))* | | *((looking at VOCA))* |
	537		⌊ (4.6) ⌋ ⌊ (1.5) ⌋
	538	J	⌈*((orientated to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ *
	539	C	| *((looking at VOCA))* | | *((looking at VOCA))* |
	540		⌊ (1.1) ⌋ ⌊ (1.8) ⌋
→	541	J	⌈*((orientated to VOCA))*⌉ * ***I can't*** (*(looks down to his left)*)
	542	C	| *((looking at VOCA))* |
	543		⌊ (1.1) ⌋
→	544	C	⌈*((looking at VOCA and turns to J))*⌉ why not
	545		⌊ (1.4) ⌋
	546	J	⌈*((orientates to VOCA))*⌉ * ⌈*((orientated to VOCA))*⌉ *
	547	C	| *((looking at J))* | | *((looking at J))* |
	548		⌊ (3.3) ⌋ ⌊ (1.6) ⌋
→	549	J	⌈*((orientated to VOCA))*⌉ * ***he isn't*** * ⌈*((orientated to VOCA))*⌉ *
	550	C	| *((looking at J))* | | *((looking at J))* |
	551		⌊ (1.2) ⌋ ⌊ (1.0) ⌋

552 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

553 C | ((*looking at J*)) | | ((*looking at J*)) |

554 ⌊ (1.5) ⌋ ⌊ (1.2) ⌋

555 J ⌈((*orientated to VOCA*))⌉ *

556 C | ((*looking at J*)) |

557 ⌊ (1.4) ⌋

→ 558 C ⌈ he's ⌉

559 ⌊((*orientates to VOCA*))⌋

→ 560 C ⌈not on it anymore

561 J ⌊*

562 ⌊((*looking at VOCA*))

→ 563 J ⌈((*orientated to VOCA*))⌉ * ***it isn't*** * ⌈((*orientated to VOCA*))⌉ * ***on***

564 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

565 ⌊ (0.8) ⌋ ⌊ (1.3) ⌋

566 J ⌈((*orientated to VOCA*))⌉

567 C | ((*looking at VOCA*)) |

568 ⌊ (1.6) ⌋

→ 569 C ⌈ ok put a ⌉ ⌈ song on

570 J | ((*reaches to towel on J's tray*)) | |((*starts to lift towel*))

571 ⌊ ((*orientated to VOCA*)) ⌋ ⌊*

→ 572 J ⌈ ***this*** ⌉ ⌈ ((*orientated to VOCA*)) ⌉

573 C ⌊((*lifts towel*))⌋ |((*places towel on J's chest*)) |

574 ⌊ (1.0) ⌋

575 J ⌈*

→ 576 C ⌊put⌈a different song on there⌉

577 ⌊ ((*withdraws hand*)) ⌋

→ 578 J ⌈ ((*orientated to VOCA*)) ⌉ * ***Delta Talker***

579 C |((*looking at J* & turns to VOCA)) |

580 ⌊ (1.8) ⌋

581 J ⌈ ((*looking down*)) ⌉

582 C |((*looking at VOCA*))|

583 ⌊ (5.1) ⌋

584 J ⌈*

585 J ⌊((*VOCA bleeps while J is looking down & not orientated towards it. J startles and orientates to VOCA*))

586 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

587 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

588 ⌊ (1.6) ⌋ ⌊ (1.3) ⌋

589 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

590 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

591 ⌊ (1.4) ⌋ ⌊ (2.0) ⌋

→ 592 J ⌈((*orientated to VOCA*))⌉ * ***Johnny***

593 C | ((*looking at VOCA*)) |

594 ⌊ (2.2) ⌋

595 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

596 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

597 ⌊ (1.0) ⌋ ⌊ (1.4) ⌋

→ 598 J ⌈((*orientated to VOCA*))⌉ * ***j***

599 C | ((*looking at VOCA*)) |

600 ⌊ (1.0) ⌋

→ 601 J ⌈((*orientated to VOCA*))⌉ * ***o***

602 C | ((*looking at VOCA*)) |

603 ⌊ (0.9) ⌋

604 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

605 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

606 ⌊ (3.2) ⌋ ⌊ (1.0) ⌋

→ 607 J ⌈ what song you ⌉

608 C | ((*orientated to VOCA*)) ⌋

→ 609 C ⌈putting

610 J ⌊*

→ 611 C ⌈on

612 ⌊((*eyes look down from VOCA & towards J*))

→ 613 J ⌈***a***

614 C ⌊((*looking at J*))

→ 615 J ⌈((*orientated to VOCA*))⌉ * ***c*** ⌈((*orientated to VOCA*))⌉ * ***k***

616 C | ((*looking at J*)) | | ((*tilts head down*)) |

617 ⌊ (0.9) ⌋ ⌊ (1.1) ⌋

618 J ⌈ ((*orientated to VOCA*)) ⌉ *

619 C | ((*looks forward and down away from VOCA*)) |

620 ⌊ (0.7) ⌋

621 J ⌈ ((*orientated to VOCA*)) ⌉ *

622 C |((*looks downward, arms raises, touches nose*))|

623 ⌊ (2.0) ⌋

624 J ⌈ ((*orientated to VOCA*)) ⌉ *

625 C |((*looking down then looks at VOCA*))|

626 ⌊ (1.7) ⌋

→ 627 C ⌈ Jack ⌉

628 J ⌊((*orientated to VOCA*)) ⌋

→ 629 J ***goes***

630 J ⌈((*orientated to VOCA*))⌉

631 C | ((*looking at VOCA*)) |

632 ⌊ (2.1) ⌋

→ 633 C ⌈ wh ⌈ at ⌉

634 ⌊((*turns| to J*)) ⌋

635 J ⌊*

636 J ⌈ ((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *

637 C |((*looks at own arm on back of chair behind J's head*))| | ((*looks at camera*)) |

638 ⌊ (1.2) ⌋ ⌊ (1.9) ⌋

639 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

640 C | ((*looking at camera*)) | | ((*looking at camera*)) |

641 ⌊ (1.3) ⌋ ⌊ (1.2) ⌋

→ 642 J ⌈((*orientated to VOCA*))⌉ * ⌈ ((*orientated to VOCA*))⌉* ⌈ ***j***

643 C | ((*looking at camera*))| | ((*looks down*)) | ⌊((*turns to VOCA*

644 ⌊ (0.8) ⌋ ⌊ (2.1) ⌋

→ 645 J ⌈((*orientated to VOCA*)) ⌉* ***o***

646 C | ((*looking at VOCA*)) |

647 ⌊ (1.0) ⌋

648 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

649 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

650 ⌊ (1.1) ⌋ ⌊ (1.0) ⌋

→ 651 C [dʒʊ:⌈:]

652 J ⌊*

653 J ⌈((*orientated to VOCA*))⌉

654 C | ((*looking at VOCA*)) |

655 ⌊ (1.5) ⌋

→ 656 J ⌈((*orientated to VOCA*))⌉ * ***is*** ⌈((*orientated to VOCA*))⌉ *

657 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

658 ⌊ (1.2) ⌋ ⌊ (0.5) ⌋

659 J ⌈((*orientated to VOCA*))⌉

660 C | ((*looking at VOCA*)) |

661 ⌊ (2.0) ⌋

→ 662 C Jo i⌈ s*:*

→ 663 J |* ***mad*** ((*smiles*))

664 ⌊ ((*looking at VOCA*))

665 (0.6)

→ 666 C ma:⌈d [ks::k]

→ 667 J ⌊* ***Jo is mad*** ((*turns to C*))

668 C ⌈Jo is mad

669 J ⌊°[e:həɜ:]°

670 (1.0)

→ 671 C what that's the song your gonna put on

672 J ⌈ °[ɜ: :]° ⌉

673 ⌊((*shakes head*)) ⌋

674 C ((*lifts towel to J's chest*))

675 ((*adult enters room*))

The turn initial pause subsequent to Colin's command is punctuated by pre-beginning bleeps of Jamal's VOCA mediated turn construction. Five bleeps are heard separated by pauses of 4.6, 1.5, 1.1, 1.8 and 1.1 seconds. During this time Colin looks at Jamal's VOCA. Immediately after the fifth bleep Jamal's response is generated as a single utterance. He says, "***I can't***" (line 541) and looks down to his left. From looking at the VOCA Colin turns to look at Jamal and asks "why not" (line 544). This is a first pair part and a question but unlike other questions it sets up an extended answer that will, necessarily, require more than a single word to complete successfully. Jamal then engages in pre-beginning VOCA mediated activity and three bleeps are heard in the ensuing pause at intervals of 3.3, 1.6 and

1.2 seconds. After the third bleep the phrase "***he isn't***" (line 549) is generated followed immediately by a bleep. Four further bleeps are heard at intervals of 1.0, 1.5, 1.2 and 1.4 seconds signalling the activity of the turn is still underway.

Colin then enters Jamal's turn with a candidate completion saying, "he's not on it anymore" (line 558 and 560). Interestingly, as noted in extracts 6 (line 052) and extract 8 (line 181), Colin is orientated to the VOCA at the TRP of this completion entry and as such projects the VOCA as the arbiter of his candidate completion. This orientation to the VOCA suggests that although Colin's entry is concerned with presenting a possible completion of the turn underway, it is not obviously concerned with proffering an alternative structural possibility for turn development, turn completion and sequence progression.

Just 0.8 seconds later Jamal restarts his turn through a self-initiated self repair, generating the phrase "***it isn't***" (line 563), followed 1.3 seconds later by a further bleep and the single word "***on***" (line 563). Over the next 1.1 seconds Jamal and Colin are aligned with the VOCA (lines 566 and 567). Then Colin speaks for the second time saying, "ok put a song on" (line 569). A VOCA generated bleep (line 571) is heard in overlap with the start of the word "song". In saying "ok" Colin receipts the prior elements of the VOCA mediated turn, displaying understanding of the turn as complete on the basis that Jamal has provided minimal relevant information to satisfy the demands of the question "why not". The last word of the turn so far, "***on***" is generated as a single word in relative isolation. As such the turn so far is hearable as possibly complete. However, the turn may not be fully complete syntactically, and importantly Jamal has remained orientated to and working with his VOCA; indeed this observation is substantiated in the production of a VOCA bleep in overlap with Colin's turn entry. Colin's misprojection of the TRP of Jamal's turns has been observed earlier in this chapter (see extract 7, page 110).

Immediately after the bleep and falling just after the completion of Colin's turn entry "ok put a different song on" (line 569), the VOCA generates the single word "***this***" (line 572). Jamal's new element of the turn and hence new possible TRP does not alter the implication for the interaction. After 1.0 second Colin enters the turn again, initiating this entry in overlap with a VOCA bleep he says, "put a different song on

there" (line 576). So, again, he treats Jamal's VOCA generated speech to this point as a second relevant TRP and takes action to project the talk forward, repeating his prior suggestion. This command also does the job of projecting explicitly his expectations for how the conversation might progress. Again Jamal does not physically move out of speakership and 1.8 seconds later he produces the word "***Delta Talker***" (line 578, the VOCAs trade name) and this time he looks down, moving out of speakership. It has been noted earlier that Jamal's physical orientation away from his VOCA is an important extra resource for signalling turn completion. It is evident then, that at this point in the interaction Colin has issued a request for Jamal to use his VOCA to generate a new song, but Jamal has just completed his response to the first command "yeah sing it" (line 534), subsequent to Colin's request.

Over the next 5.1 seconds Jamal remains looking down and Colin looks at the VOCA. Then, despite the fact that Jamal is looking down rather than at his VOCA a VOCA bleep is heard. Jamal is startled by this sudden, and perhaps unexpected, noise and he orientates to the VOCA (it is common for children with Cerebral Palsy to retain a sensitive startle reflex. This is present in normally developing children in the first year and diminishes with maturation). This action signals that the VOCA activation was likely to have been accidental. Jamal is then observed to work with his VOCA producing five bleeps over a period of 8.5 seconds. Immediately following the last bleep in that series he produces the single word "***Johnny***" (line 592). Throughout this time Colin is looking at the VOCA. This segment of the transcript and the subsequent events are represented in segment 9.1 below.

Segment 9.1 (J&C: 592 – 612)

→	592	J	⌈((*orientated to VOCA*))⌉ * ***Johnny***
	593	C	| ((*looking at VOCA*))|
	594		⌊ (2.2) ⌋
	595	J	⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
	596	C	| ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
	597		⌊ (1.0) ⌋ ⌊ (1.4) ⌋
→	598	J	⌈((*orientated to VOCA*))⌉ * ***j***
	599	C	| ((*looking at VOCA*)) |
	600		⌊ (1.0) ⌋

→ 601 J ⌈((*orientated to VOCA*))⌉ * ***o***

602 C | ((*looking at VOCA*)) |

603 ⌊ (0.9) ⌋

604 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

605 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

606 ⌊ (3.2) ⌋ ⌊ (1.0) ⌋

→ 607 J ⌈ what song you ⌉

608 C ⌊((*orientated to VOCA*))⌋

→ 609 C ⌈putting

610 J ⌊*

→ 611 C ⌈on

612 ⌊((*eyes look down from VOCA & towards J*))

Two point four seconds later and following a further two bleeps the single letter "***j***" (line 598) is produced, followed by the letter "***o***" (line 601) 0.9 seconds after that. A further two bleeps are heard at intervals of 3.2 and 1.0 seconds (line 604), at which point Colin enters the turn in progress to ask, "what song you putting on" (lines 607, 609 and 611) and he retains his gaze towards the VOCA. As a question this turn entry makes relevant an answer from Jamal but this is not the primary function of this turn. Rather, Colin is seen to state explicitly his current understanding of the relationship between Jamal's turn in progress and his own prior actions. He makes it clear that he expects the current VOCA mediated action to be concerned with generating a song, a request made prior to the end of Jamal's previous turn. In this way he publicly superimposes a potential form of structure to the unfolding events. The subsequent events are represented in segment 9.2 below.

Segment 9.2 (J&C: 613 – 635)

→ 613 J ⌈***a***

614 C ⌊((*looking at J*))

→ 615 J ⌈((*orientated to VOCA*))⌉ * ***c*** ⌈((*orientated to VOCA*))⌉ * ***k***

616 C | ((*looking at J*)) | | ((*tilts head down*)) |

617 ⌊ (0.9) ⌋ ⌊ (1.1) ⌋

618 J ⌈ ((*orientated to VOCA*)) ⌉ *

619 C | ((*looks forward and down away from VOCA*)) |

620 ⌊ (0.7) ⌋

	621	J	⌈ ((*orientated to VOCA*)) ⌉ *
	622	C	| ((*looks downward, arms raises, touches nose*)) |
	623		⌊ (2.0) ⌋
	624	J	⌈ ((*orientated to VOCA*)) ⌉ *
	625	C	| ((*looking down then looks at VOCA*)) |
	626		⌊ (1.7) ⌋
→	627	C	⌈ Jack ⌉
	628	J	⌊((*orientated to VOCA*)) ⌋
→	629	J	***goes***
	630	J	⌈((*orientated to VOCA*))⌉
	631	C	| ((*looking at VOCA*)) |
	632		⌊ (2.1) ⌋
→	633	C	⌈ wh ⌈ at ⌉
	634		⌊((*turns* | *to J*)) ⌋
	635	J	⌊*

Just at the TRP of Colin's turn entry " what song you putting on" (lines 607, 609 and 611), the VOCA generated letter "***a***" (line 613) is heard followed 0.9 seconds later by a bleep and the letter "***c***" (line 615), and 1.1 seconds after that the letter "***k***" (line 615). Now Colin looks down and forward into the body of the room. Three further bleeps are heard at intervals of 0.7, 2.0 and 1.7 seconds. Just prior to the third of these bleeps Colin looks at the VOCA and says, "Jack" (line 627). In this way he signals that he has heard the turn so far; that he has made some sense of Jamal's spelling and consequently that the spelled element of turn so far has been bought to completion. At the moment that Colin completes this turn entry Jamal generates the single word "***goes***" (line 629). After 2.1 seconds Colin provides an other initiated repair, saying "what" (line 633) (Schegloff et al., 1977). A bleep is heard in overlap with this entry. This action displays Colin's difficulty in monitoring the content and function of Jamal's VOCA mediated turn so far, emphasising the unusualness of this turn: "***Johnny, j, o, a, c, k, goes***".

The final segment of this extract of transcript is reproduced below.

Segment 9.3 (J&C: 363 – 675)

636 J ⌈ ((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
637 C |((*looks at own arm on back of chair behind J's head*))| | ((*looks at camera*)) |
638 ⌊ (1.2) ⌋ ⌊ (1.9) ⌋
639 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
640 C | ((*looking at camera*))| | ((*looking at camera*)) |
641 ⌊ (1.3) ⌋ ⌊ (1.2) ⌋
→ 642 J ⌈((*orientated to VOCA*))⌉ * ⌈ ((*orientated to VOCA*))⌉* ⌈***j***
643 C | ((*looking at camera*))| | ((*looks down*)) | ⌊((*turns to VOCA*
644 ⌊ (0.8) ⌋ ⌊ (2.1) ⌋
→ 645 J ⌈((*orientated to VOCA*)) ⌉* ***o***
646 C | ((*looking at VOCA*)) |
647 ⌊ (1.0) ⌋
648 J ⌈((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
649 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
650 ⌊ (1.1) ⌋ ⌊ (1.0) ⌋
→ 651 C [dʒu:⌈:]
652 J ⌊*
653 J ⌈((*orientated to VOCA*))⌉
654 C | ((*looking at VOCA*)) |
655 ⌊ (1.5) ⌋
→ 656 J ⌈((*orientated to VOCA*))⌉ * ***is*** ⌈((*orientated to VOCA*))⌉ *
657 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
658 ⌊ (1.2) ⌋ ⌊ (0.5) ⌋
659 J ⌈((*orientated to VOCA*))⌉
660 C | ((*looking at VOCA*)) |
661 ⌊ (2.0) ⌋
→ 662 C Jo i⌈ s:
→ 663 J |* ***mad*** ((*smiles*))
664 ⌊ ((*looking at VOCA*))
665 (0.6)
→ 666 C ma:⌈d [ks::k]
→ 667 J ⌊ * ***Jo is mad*** ((*turns to C*))

668 C ⌈Jo is mad

669 J ⌊°[e:həɜ:]°

670 (1.0)

→ 671 C what that's the song your gonna put on

672 J ⌈ °[ɜ: :]° ⌉

673 ⌊((*shakes head*)) ⌋

674 C ((*lifts towel to J's chest*))

675 ((*adult enters room*))

Jamal does not obviously orientate to Colin's other initiated repair but, true to form, continues to work with his VOCA. Over the subsequent 8.5 seconds a further six bleeps are heard. During this time Colin removes his gaze from the VOCA and Jamal and looks around the room and at the video camera. After the sixth bleep Jamal generates the single letter "***j***" again (line 642) and at this point Colin looks at the VOCA. Then, 1.0 second later and following a bleep the letter "***o***" is produced again (line 645). After an additional 2.2 second pause punctuated by two bleeps, Colin enters the turn space for the sixth time, on this occasion attempting to sound out the word underway saying, "[dʒʊ: :]:" (line 651). The way in which Colin sounds out this turn entry, elongating the final vowel and looking at the VOCA, suggests that he is treating the word so far as unfinished. However, it turns out that these two letters represent the whole word and a name "Jo". It has been noted that Colin may experience difficulty in locating the TRP of Jamal's VOCA mediated turns and this turn entry illustrates that he has similar difficulties in judging the completeness of within turn elements that are produced through a spelling strategy. This would seem to be the case particularly where the current turn does not reflect the content and function of Colin's prior turns so, again, Colin cannot easily draw on the sequential context as a resource to assist his understanding.

Then, 2.7 seconds and two bleeps later Jamal produces a single word "***is***"(line 656). Then, after 2.5 seconds punctuated by one bleep, Colin enters the turn to provide a treatment of the turn elements produced after his other initiated repair "what". He says, "Jo is" (line 663). In overlap with the final phoneme of this entry Jamal produces the single word "***mad***" (line 664) and he smiles, in so doing projecting something of the nature of this latest element of his actions. Colin receipts this

single word, repeating it and generating a vocalisation hearable as a form of laughter, saying, "ma:d [ks::k]" (line 666). In overlap with this action Jamal produces the latest elements of the turn in combination producing the utterance "***Jo is mad***" (line 667), he then turns towards Colin, moving out of speakership and chuckling gently. The TRP then is signalled here though the syntactic structure and pragmatic function of this utterance and through Jamal's physical movement out of speakership. After 1.0 second Colin speaks asking "what that's the song you gonna put on" (line 671), and Jamal is seen to shake his head and vocalise. At this point an adult enters the room. In relating Jamal's turn "***Jo is mad***" (line 667) to the possibility that it is a song that Jamal will produce, Colin publicly displays the fundamental difficulty he has in dealing with Jamal's actions outside the adjacency pair exchange. Essentially, it appears that Jamal's turn has been reshaped on a number of occasions as he repairs the turn, however, these events are not obviously available to Colin. Where this type of activity was seen in extract 8, within the context of Jamal's alignment with the meta-interactional set up that his turn should be a question, the difficulties are resolved. In this instance Colin's question, "what that's the song you gonna put on" (line 671) displays that although he has understood the content of the turn he is unable to make sense of it within the sequential context in which it is produced. The central problem for Colin is his difficulty in understanding how Jamal's turn is sequentially related to his prior talk. This type of difficulty has been observed in conversation between speaking adults (Drew, 1997). Recipients may understand the content of the speakers turn but experience trouble in identifying its "fit" with the prior sequence. Drew describes how an abrupt topic shift by the speaker may bring about such difficulty for the recipient. It is possible that Jamal is trying to initiate a new topic here or at least something new within the context of the topic of the song on his VOCA.

5.3.1 Summary

Extract 9 above illustrates the types of difficulties that the boys encounter in aspects of conversational organisation when Jamal attempts to take a turn beyond the adjacency pair exchange most typical of this conversation, and when these actions do not match Colin's expectations for how Jamal might take his next turn. In this

episode of interaction it is apparent that Colin's expectations for the development of the conversation through Jamal's VOCA mediated turn and Jamal's own course of action do not match.

Jamal's turns are characterised by delayed progressivity, and as was seen in extract 7, Colin misjudges the TRP of Jamal's turn, entering the turn early. Also, as was observed in extract 8, Colin appears unaware that Jamal is conducting aspects of self-initiated self repair (Schegloff et al., 1977). Consequently, the boys lack mutual alignment of understanding and expectations for the development of the turn in progress. Furthermore, Colin struggles to pinpoint not only the content of the turn but the turn's intended function. These difficulties make public the normally tacit evaluations that listeners conduct on speakers' turns in progress. Jamal's initiation of VOCA mediated talk outside the adjacency pair structure creates difficulties for Colin in understanding the VOCA output. Interestingly, this type of difficulty, brought about by aided speakers' initiation of VOCA mediated turns, is observed in the conversation between Tina and Lucy.

5.4 Summary of analysis

The central aim of the analysis of Jamal and Colin's conversation has been to examine in detail the nature of the boys' interaction. Embedded within this aim is a concern to explore Colin's role in the organisation of the interaction and the contribution made by the VOCA. It is evident that the conversation is organised primarily through the recurring realisation of adjacency pairs, particularly test questions, and that Colin and Jamal may provide first or second pair parts.

The first section of analysis examined recurring patterns of interaction bought about by Colin's realisation of first pair parts. Colin designs his first pair part as a question in four of the five instances examined, and three of the four questions were test questions. These first pair parts set up a robust structure for the organisation of the subsequent turns. Put simply, Colin's first pair parts organise a very specific and relatively limited role for Jamal and VOCA use in the realisation of second pair parts. Jamal will use his VOCA to produce a next turn related to the prior. Most

typically this turn is predefined as an answer. Often the content of the turn will be a single word number, although not necessarily. In this way the likely content of the turn and what it will take to reach a point of completion is known by Colin in advance of Jamal's turn.

Jamal's occupation of the role of speaker is signalled by his alignment of posture and gaze towards the VOCA. Often, Colin's recipiency of this action is observed in his own orientation of gaze and posture towards the VOCA.

It is an important finding that it is Colin who organises Jamal's turns in the production of first pair parts. He does this through the use of meta-interactional commands. Such turns work in a similar way to Colin's own first pair parts in that they allocate unequivocally Jamal as the next speaker and project a set of expectations for the form of his subsequent turn and the contribution of the VOCA to the conversation in that turn. Such turns are invariably concerned with ensuring that Jamal's first pair part VOCA mediated turn is one that poses a question. So, for example turns such as "now you ask me a question about football" and "ask me a question now" are commonplace. These actions are designed to manoeuvre the conversation towards a strongly predictable configuration of turns realised in question and answer exchanges. So, again, Colin's turns make relevant a resrticted set of possibilities for VOCA use.

It is evident also that Jamal's VOCA mediated turns are unlike spoken turns. Jamal's VOCA mediated turns are characterised by large turn initial pauses which are occupied by VOCA generated bleeps. These bleeps and Jamal's physical alignment with the device signal pre-beginning elements of the turn. These turns are also characterised by multiple within turn pauses of variable length and as such they lack the progressivity (Schegloff, 1979) of spoken utterances. VOCA generated bleeps are evident within the turn also and signal Jamal's continued VOCA use and that a VOCA generated item such as a word or letter is forthcoming. These characteristics of Jamal's VOCA mediated turns have structural implications for the conversation. That is, Colin treats Jamal's VOCA mediated turns of more than one unit as permeable. The analysis has revealed a range of problematic issues that emerge in the construction of a VOCA mediated turn including, for example, difficulties for

Colin in identifying the TRP and tracking the relevant content of the turn. Where problems do surface the public understanding that Jamal's turn is orientated towards the production of a question provides a resource for resolving the difficulties.

Colin's recurring orientation to the organisation of the conversation through adjacency pairs provides a resource for him in dealing with potential ambiguities within Jamal's turn. When the conversation moves beyond the adjacency pair exchange it is apparent that problems emerge with the boys' mutual understanding and expectations for the turn in progress, and Colin demonstrates difficulties in making sense of the structure, content and function of Jamal's VOCA mediated activity.

It is evident that Jamal and his use of the VOCA can make a significant contribution to the conversation. His ability to answer and ask questions and make jokes, and his orientation to the production of full grammatical sentences demonstrate his abilities as a VOCA user and as a user of language. Nevertheless, analysis has revealed how Colin works hard to structure Jamal's place and the place of the VOCA in the conversation.

Chapter 6

6.0 Analysis and findings: Tina and Lucy

Like the conversation between Jamal and Colin, the conversation between Tina, who uses a communication aid, and Lucy, her naturally speaking partner, progresses largely through the recurrent realisation of adjacency pairs realised as questions and answers. Once the initial topic of the talk is agreed this form of interaction provides the backbone of the talk's organisation. However, beyond this comparison the specific nature of the adjacency pair exchanges identified here differs from the other dyads studied in this thesis. First, the analysis will examine Lucy's use of questions that lead to VOCA use in the answer. Although this feature of the interaction is relatively limited this analysis will provide an early insight into the specific nature of Tina's VOCA mediated turns, drawing comparisons with Jamal and Colin's conversation. Secondly, the analysis considers Tina's realisation of first pair parts, in particular her unilateral initiation of VOCA mediated turns, and the problems evident in such VOCA use. Unlike Jamal and Colin's conversation Tina regularly contributes to the talk through non-verbal actions. These are manifested typically as head nods and shakes. Having examined VOCA use in this conversation the latter part of this chapter will explore both girls' actions in the organisation of the conversation in which the VOCA is not used. So, the third aspect of analysis considers Lucy's use of questions that initially require VOCA use to be answered but are reformulated to make non-verbal actions in response a suitable next action. In the fourth and last section of this chapter a prominent feature of the talk which involves Lucy's use of recurring questions or candidate answers in pursuit of a target or answer will be examined.

6.1 Lucy's use of first pair parts that require VOCA mediated second pair parts

The analysis here describes a particular class of first pair part, that is, questions that require and lead to VOCA mediated answers. This form of first pair part is only used on two occasions within this conversation. This first section of analysis will examine these two exchanges and in so doing reveal some intriguing similarities and differences with Colin's use of questions and Jamal's VOCA use in answering.

Consider the first example illustrated in extract 10 below. In order to orientate the reader to the sequence of particular interest the exchange of turns prior to the target sequence is presented. In this instance the prior exchange involves Tina in a unilateral initiation of a VOCA mediated turn. This feature of the interaction will be examined in detail below. For now the exchange is described only briefly in order to provide a context for examination of Lucy's question (line 322) and the subsequent events.

The transcripts in this chapter differ slightly from those used for the other dyads. Tina accesses her communication aid through a switch operated automatic scanning procedure. The scanning procedure is characterised by the production of a regular ongoing series of VOCA bleeps as the scanning process passes through options on the VOCA interface. The presence of scanning bleeps within the interaction is marked by a * in the left margin. Where appropriate individual bleeps are marked within the body of the transcript.

Extract 10 (T&L: 303 – 373)

303	*	T	⌈((*sudden onset of large backward head movement, orientating to VOCA and hitting switches*))⌉
304	*		⌊ (3.6) ⌋
305	*	L	⌈you gonna say something⌉
306	*	T	⌊ ((*orientated to VOCA*)) ⌋
307	*	T	((*raise eyebrows head moves forward, remains orientated to VOCA with head held forward*))
308	*	L	⌈ you gonna say ⌉ ⌈ something ⌉
309	*	T	⌊ ((orientated to VOCA)) ⌋ ⌊((*head drops further forward*)) ⌋
310	*	L	yeh

311 * T ⌈((*switching*))⌉ ***picture***

312 * ⌊ (32.0) ⌋

313 * L picture

314 * T ((*nods*))

315 * L you coloured⌈ in a picture ⌉

316 * ⌊((*head drops forward, chin on chest, small nod movement*)) ⌋

317 * L yeah

318 * T ((*head still forward, nods*))

319 * L ⌈ ((*looking forward*)) ⌉

320 * T |((*lifts head up raises eyebrows slightly*))|

321 * ⌊ (1.8) ⌋

→ 322 * L ((*turns to T*)) what colours did you use

323 * T ((*stiffens her body bracing through her arms*)) [γ] =

324 * T ⌈((*looking at VOCA*))⌉

325 * L | ((*looking at T*)) |

326 * ⌊ (0.8) ⌋

327 * L ⌈ (5 syllables) ⌉

328 * T ⌊((*looking at VOCA hits head switch*))⌋

329 * T ((*sudden physical extension of trunk & arms rocking head back suddenly in headrest and forward & down, raises head slowly and orientates to VOCA*))

→ 330 * T ⌈((*switching*))⌉ ***yellow***

331 * ⌊ (26.0) ⌋

→ 332 * L ⌈you used yellow ⌉

333 * | ((*looking at T*)) |

334 * T ⌊((*orientated to VOCA*))⌋

335 * T ((*head braced back up between headrest, head moved back to between switches and forward slightly*))

→ 336 * T ⌈ ((*orientated to VOCA*))⌉ ***blue***

337 * ⌊ (24.5) ⌋

→ 338 * L ⌈ ((*turns to look at T*)) ⌉ blue,

339 * T | ((*orientated to VOCA*)) |

340 * ⌊ (1.2) ⌋

341 * T ((*small forward head movement*))

342 * (1.0)

→ 343 * L ⌈ yellow blue, ⌉

344 * T ⌊((*orientated to VOCA*))⌋ ((*large forward head movement*))

→ 345 * T ⌈((*orientated to VOCA*))⌉ ***pink***

346 * L ⌊ (30.0) ⌋

347 * (0.6)

→	348	*	L	pink
	349	*	T	((*nods looking at VOCA*))
→	350	*	T	⌈ yellow blue pink ⌉
	351	*	L	⌊ ((*orientated to VOCA*)) ⌋
→	352	*	T	⌈((*nods & continues switching*))⌉ ***striped*** ((*?look to L?*))
	353	*		⌊ (76.5) ⌋
→	354	*	L	you done it striped
	355	*	T	((*head drops forward, chin on chest*))
→	356	*	L	yep ⌈((*looks forward away form L*))⌉
	357	*	T	|((*head forward and down*)) |
	358	*		⌊ (0.9) ⌋
→	359	*	L	°um:° ⌈ ((*looking forward away from L*)) ⌉
	360	*	T	|((*head raised up slowly hits head switch*))|
	361	*		⌊ (3.9) ⌋
→	362	*	L	is that all
	363	*	T	((*head drops forward, chin on chest*))
→	364	*	L	or you got more
	365	*		(1.2)
	367	*	T	⌈((*head moves to left*))⌉ ⌈((*head moves to right & hits switch*))⌉
→	368	*	L	⌊ that's ⌋ ⌊ all ⌋
	369	*	T	⌈((*orientated to VOCA, head moves forward and back slightly*))⌉
	370	*		⌊ (3.2) ⌋
	371	*	L	⌈ what did you ⌈do ⌉on Sunday ⌉
	372	*		| ⌊ * ⌋ |
	373	*	T	⌊ ((*orientated to VOCA*)) ⌋

At the start of this extract Tina initiates some VOCA directed activity (line 303). Lucy orientates to this saying "you gonna say something" (lines 305 and 308). Tina nods (line 309) and Lucy confirms the status of Tina's actions saying, "yeh" (line 310). After 32 seconds Tina generates the single word, "***picture***" (line 311) and Lucy receipts this utterance saying "picture" (line 313). Tina then nods (line 314) and Lucy re-confirms her receipt of the VOCA mediated utterance saying, "you coloured in a picture" (line 315). Tina confirms this treatment of her VOCA mediated turn by nodding in parallel with Lucy's turn (line 316). Lucy makes public her understanding of Tina's nodding by saying "yeah" (line 317) and Tina nods once more (line 318).

The particular extract of interest now begins with Lucy asking, "what colours did you use" (line 322). As a question this turn locates Tina as the next speaker and that her turn is due immediately next (Heritage, 1984b). Lucy's question also implies that Tina's turn will be an answer, and in order to answer this question Tina is required to use her VOCA. The question design also makes relevant an answer from a restricted category, and as such the relevant form of the next turn is made explicit, that is, a list of colours, comprising more than one colour. As a list Tina's turn has a predetermined syntactic structure and she can generate a syntactically appropriate answer without concern for the use of grammatical markers. Like Colin's use of test questions, Lucy's actions provide a framework for the organisation of VOCA use. VOCA use is brought about within an explicit context and for an unambiguous task where the structure, and to some extend the content, of the VOCA turn is predetermined.

Next Tina stiffens her body, bracing through her arms and produces a short vocalisation (line 323), she lifts her head towards her headrest and a click is heard as she presses against one of the switches. Lucy then speaks, however this is unintelligible (line 327). Nevertheless, this turn does not appear to alter the trajectory of the events made relevant by Lucy's question. Tina is observed to rock her head back suddenly, hitting her head switch. Her head then falls forward again and she slowly raises it, orientating again to the VOCA (line 329), and finally she begins working with her VOCA, represented in the transcript as switching. In comparison with Jamal it is apparent that Tina experiences difficulties in initiating and organising head movements required to access her VOCA. Indirect access is slower generally than direct access procedures like that used by Jamal. As such she may experience a greater delay in starting and maintaining VOCA use than was observed for Jamal.

It is notable that throughout this exchange regular scanning bleeps are being emitted by the VOCA and it is possible that these bleeps are running over from Tina's previous VOCA use as the automatic scanning procedure offers her further opportunities to develop a turn. It was seen that Jamal generated VOCA bleeps when actively locating the infrared light source mounted on his headband on the device

interface. Despite an occasional accidental triggering of the device he retained almost complete volitional control over when bleeps might be heard. As such they signalled the possibility that a VOCA mediated action was underway. For Tina the characteristics of the scanning procedure mean that scanning bleeps, bleeps that suggest the possibility of, and provide an opportunity for, VOCA use, may be sounding beyond the end of a VOCA mediated turn and in parallel with other conversational activities. As such they do not possess the same interactional status of intentionality as bleeps generated by Jamal's VOCA and this as implications for the interaction. Here, and more generally, Lucy does not orientate to them as relevant to the development of the interaction.

Tina works with her VOCA and Lucy sits in silence for a full 26 seconds before Tina generates the single word "***yellow***" (line 330). This represents a very significant delay between the TRP of Lucy's question and the start of the answer. In interaction between speaking participants it is the case that second pair parts are due immediately on the completion of first pair parts (Heritage, 1984b). Delay was also seen between the TRP of Colin's questions and the start of Jamal's answers. During these turn initial pauses Jamal was observed to generate pre-beginning elements of his turn and this is the case here with Tina working with her device and ongoing scanning bleeps evident. However, the turn initial pause here is massively greater than those between speaking participants and greater still than those observed in Jamal and Colin's conversation. As such, although this exchange is designed and organised as an adjacency pair, question and answer exchange, the temporal alignment of events is not like speaking partners' turns. Although Tina's VOCA mediated answer greatly alters the speed of the conversational progression, on this occasion Lucy orientates to this temporal shift as unproblematic waiting and remaining silent during this time, her gaze shifting between looking at Tina, looking down and looking straight ahead into the middle distance.

On hearing "***yellow***" Lucy provides a receipt for the VOCA generated word saying, "you used yellow" (line 332). In designing her turn in this way Lucy displays that she is treating "***yellow***", a colour used in the picture, and as an answer to her question. In addition, Lucy produces this receipt with continuing intonation, conveying the sense that at least one further element is forthcoming and therefore

that the turn has not reached its TRP. Like Colin, Lucy enters the turn underway. It was noted that, most commonly, Colin's entries into Jamal's turns were concerned with anticipating elements of the utterance, and on occasion echoed recipients' "anticipatory completion" of speakers' turns in response to intra-turn silence (Lerner, 1996). Although Lucy enters a VOCA mediated answer and Colin enters into Jamal's questions, the common factor that links the speaking partners' actions is the fact that VOCA mediated turns of more than one word are characterised by delayed progressivity within the turn. Lucy's entry into Tina's turn is different to Colin's. It is perhaps because Tina is engaged in producing an answer that Lucy does not anticipate elements of the turn but enters the answer underway to display how she understands it. That said, this action is similar to those observed in conversation between adults using low-tech communication aids and their peers. In this context speaking partners may repeat the name of symbols or words identified by the aided speaker in the communication book or chart (Higginbotham, 1989; Higginbotham & Wilkins, 1999).

Lucy's actions in turn entry follow a regular pattern for the remainder of Tina's VOCA mediated turn. Following each VOCA generated utterance Lucy repeats the word and adds it to an accumulating list that she keeps updated and in parallel with Tina's turn building, providing up to date temporal alignment of the turn elements, and in this way restoring the turn's progressivity. So, following Tina's production of "***yellow***" an intra-turn pause is realised and lasts for 24.5 seconds before Tina generates the next single word "***blue***" (line 336). Again, this is a very significant pause between subsequent elements of the same answer. Lucy sits in silence and then 1.2 seconds after hearing the word "***blue***" she turns to Tina and receipts this single word saying, "blue" (line 338). Again, Lucy produces this turn with a continuing intonation suggesting that she is treating the list of colours as incomplete and the answer as ongoing, and then 1.0 second later she combines blue with the first word yellow saying, "yellow blue" (line 343), keeping the list so far temporally current, and again it is realised with continuing intonation, indicative of her expectation that more colours are due.

The list continues to unfold very slowly and the third element of the list "***pink***" (line 345) is produced after another 30 seconds, that is, 81.3 seconds from the TRP of

Lucy's question. On hearing this third element Lucy again receipts the new element saying, "pink" (line 348). Then, Tina is observed to nod her head forward following Lucy's receipt. Following this action Lucy adds this new element to the list so far saying, "yellow blue pink" (line 350), combining the temporally disparate elements of Tina's unfolding utterance, pulling each item together and locating the utterance so far in full and at the forefront of the activity. Thus, each new element is temporally more relevant to the first and subsequent utterances. Interestingly, the way in which Lucy applies continuing intonation to her turns signals the projection of the talk forward in a way that is not achievable through the VOCA, which generates single words with falling pitch. Tina nods in apparent response to Lucy's actions and continues working with her device (line 352). On two occasions here Tina is seen to respond to Lucy's turn entry and at the same time remain orientated to the ongoing VOCA mediated activity. As such Tina displays competence in embedding non-verbal action within VOCA use.

Then, following a further very significant pause of 76.5 seconds, the greatest so far between consecutive elements, Tina produces the adjective "***striped***" (line 352). This action highlights a shift in status of the VOCA mediated turn as Tina introduces new content, reforming how the use of colours is to be understood and moving her turn beyond the answer made relevant by the original question. Lucy receipts this event saying, "you done it striped" (line 354). Tina then nods in confirmation of Lucy's receipt, in this instance her head dropping forward to leave her chin forward and resting on her chest. Lucy then voices her treatment of this head movement saying, "yep" (line 356). Tina's head now is noticeably distant from her head switches and she is not looking with the VOCA. To some extent this head movement mirrors Jamal's physical movement out of speakership. As such, this action is seeable as a possible movement away from her incumbency of the role of speaker and a signal of the TRP (line 355). This is not an unequivocal signal but it raises the possibility of its location here.

The utterance "***striped***" comes at the end of a three-part colour list. Lucy orientates to the status of the list so far and Tina's head position as a possible TRP saying, "um (3.9) is that all" (lines 359 and 362). This action reveals an interactional issue for Lucy in that she is not certain when Tina's turn has finished and when it is relevant

for her to speak again in a next turn. Some difficulty in locating the TRP of Jamal's turns as questioner or in a self-initiated turn was evident. In those instances Colin initiated new talk upon judging Jamal's turn complete. Here Lucy takes action to explicitly identify the status of Tina's utterance. Lucy designs this question so that it may be answered fairly straightforwardly through a nod or shake of the head. Indeed, during the question Tina raises her head up from her chest and now her head drops forward to her chest again in what could be treated as an emphatic nod (line 363). Lucy checks the response by redoing her prior turn saying, "or you got more" (line 364). With her chin still forward and down Tina moves her head to the left and right. In parallel with these actions Lucy offers a candidate treatment saying, "that's all" (line 368). Over the next 3.2 seconds Tina is observed to move her head forward and back slightly (line 369), which Lucy implicitly treats as confirming the end of the turn evidenced in her initiating a new sequence of turns by asking "what did you do on Sunday" (line 371).

It is apparent that like Colin, Lucy may design a question to make relevant a fairly restricted set of possibilities for VOCA use in the subsequent turn. In Tina's VOCA use very significant pauses are evident, both before the first word of the turn and also between words. For instance, between generating the word "***pink***" and producing the new word "***striped***", Tina is engaged in VOCA orientated activity for 76.5 seconds. Indeed, the production of the answer comprising four words, from the TRP of the question "what colours did you use" (line 332) to Lucy's question "um (3.9) is that all" (lines 359 and 362) lasted 161.5 seconds. Obviously then the progressivity (Schegloff, 1979) of the VOCA mediated turn is significantly delayed, and much more so than Jamal's VOCA mediated turns. It is also apparent that Lucy treats Tina's turn as permeable but enters the turn only to receipt VOCA mediated elements and combine them in the development of the turn so far. On occasion Tina appears to receipt Lucy's turn entries with a head nod (line 341). In this way the elements of Tina's single turn themselves become turns within a sequence. It is also apparent that the TRP of Tina's VOCA mediated turn is not obviously evident to Lucy and she takes action to explicitly negotiate it over several turns (lines 362-368).

The analysis now presents the second example of Lucy's use of a question that requires VOCA use in the answer. In this instance the relevance for a VOCA

mediated answer from a restricted class of relevant possibilities is again evident but is brought about by a reformation of the initial question and Tina's VOCA mediated answer is realised in a different way.

Extract 11 (T&L: 025 – 042)

→	025		L	⌈what do you do normally in swimming ⌉
	026		T	⌊ *((looking at VOCA))* ⌋
	027	*	T	⌈*((motionless then hits switch & bleep heard immediately))* ⌉ *
	028	*	L	| *((looking at T))* |
	029	*		⌊ (0.5) ⌋
	030	*	T	⌈ *((looking at VOCA then hits switch & generates a bleep))* ⌉ *
	031	*	L	| *((looking at T))* |
	032	*		⌊ (1.7) ⌋
	033	*	T	⌈* *((looking at VOCA))*
→	034	*	L	⌊who normally takes ya
→	035	*	T	⌈*((orientated to VOCA, switching))* ⌉ ***m*** *((?looks to L with slight frown?))*
	036	*		⌊ (26.0) ⌋
→	037	*	L	⌈ °Margaret° ⌉
	038	*		⌊*((looking at T))*⌋
	039	*	T	*((nods head dropping forward and remains down and forward))*
→	040	*	L	right
	041	*	T	⌈*((begins to lift head up))*⌉
	042	*		⌊ (3.0) ⌋

This particular exchange is launched by Lucy with the question, "what do you do normally in swimming" (line 025). As Lucy asks the question Tina remains physically still and looking at her VOCA. Then, following the TRP of Lucy's question a pause of approximately 0.5 seconds, attributable to Tina is observed before she hits her head switch and a bleep is heard, generating the first pre-beginning element of her turn (line 027). It is notable here that, unlike extract 10 above, Tina's VOCA is not already generating scanning bleeps and the first pre-beginning elements of the VOCA turn are initiated from silence. During this turn initial pause Tina remains orientated towards her VOCA and Lucy watches Tina. A further silence is observed for 1.7 seconds at which point a second bleep, again generated by Tina's activation of a switch, is heard (line 030). Tina, then, is visibly engaged in producing pre-beginning elements of a VOCA mediated turn that is most

likely an answer to Lucy's question "what do you do normally in swimming" (line 025). At the exact point at which the next bleep is heard Lucy enters the turn initial pause and provides a reformation of her original question asking, "who normally takes ya" (line 034).

This action echoes Colin's reformation of his command "tell me your best song" discussed in extract 9 above. This action steers the conversation forward by inviting Tina to answer about a specific aspect of swimming, that is, maintaining the theme but altering the type of answer expected by making relevant a response from a particular category, that is, school staff who take Tina swimming. Being concerned also with normal events, "who normally takes ya", the question reduces the possibility of an unusual or unexpected answer. As such it implicates a more predictable answer in terms of the content of the turn and its form, by making a single word answer a fully relevant next turn event. As highlighted in the discussion of Colin's use of test questions, as a single word answer the TRP of the turn is signalled unequivocally. Furthermore, in light of the very significant delays in the progressivity of Tina's VOCA mediated turns this second question makes the answer easier and potentially quicker for Tina to produce and for Lucy to understand.

Subsequently, Tina is involved in VOCA orientated actions for 26 seconds before generating the single letter "***m***" (line 035). So again, although the second pair part answer to the question is due immediately (Heritage, 1984b), it does not come about for a considerable time and the VOCA mediated answer is characterised by a very large turn initial pause. Again, Lucy orientates to this as unproblematic as evidenced by her waiting silence. On generating the letter "***m***", Tina appears to hold her head up slightly away from direct orientation with the VOCA and turn very slightly towards Lucy, moving her head forward fractionally and fixing her gaze on Lucy (line 035). Despite repeated viewing of these moments there remains some residual doubt about the direction of Tina's gaze here. However, what is apparent is that Lucy enters the turn and provides a candidate guess projecting the remainder of the word by whispering, "°Margaret°" (line 037). This candidate is based on the first single letter of Tina's VOCA mediated turn and the context set up by Lucy's reformation of the original question. It is not clear why Lucy chooses to whisper this here. It is

possible that she is orientating to the presence of the video camera and the possibility that her completion of Tina's answer displays some lack of competence on Tina's part. In this way she introduces a possible TRP before the obvious point of completion of the VOCA mediated utterance. The question of whether this action is invited by Tina or not rests in the accurate description of her eye-gaze and head movement following the production of "***m***", but unfortunately this cannot be stated unequivocally. Nevertheless, Tina is observed to orientate to Lucy's candidate answer nodding her head forward and keeping her head down and forward away from switches and out of alignment with her VOCA, and therefore potential speakership (line 039). Lucy then speaks again, publicly treating Tina's head movement as a confirmation of the candidate answer, saying "right" (line 040) and consequently the completion of that particular question and answer exchange. Interestingly, then, Lucy's reformation of her initial question places additional demands on Tina in making it necessary for her to alter the development of the turn underway in order to answer the new question. However, this action also supports the progression of the conversation for both girls by making the relevant answer a single word event. As such this is an answer that may be generated relatively quickly, completed unambiguously and understood without difficulty.

A further interactive outcome of Lucy completing Tina's turn is that the answer is generated more quickly than would be expected if Tina went on to spell the remainder of Margaret's name. This strategy has been observed in conversation between adults using communication aids including VOCAs and naturally speaking adults (Higginbotham et al., 1988).

6.1.1 Summary

Although a relatively limited feature of the interaction, it is apparent that, like Colin, Lucy may design first pair parts as questions that make relevant strongly predictable content and form of VOCA use in the next turn. This may involve reformulating the original turn to limit relevant next events. Like Jamal, Tina's VOCA use is characterised by significantly delayed progressivity but for Tina turn initial and intra-turn pauses are significantly greater. Again, as seen in Jamal and Colin's

conversation, the speaking partner, may enter the VOCA users turn. In entering the turn Lucy has been observed to repeat and combine VOCA mediated elements of the turn, in this way restoring to some degree the turn's progressivity. Furthermore, Lucy's turn entries imbue the VOCA mediated turn elements with a more natural prosodic character. Alternatively, Lucy has been observed to offer a candidate guess as to the full intended meaning of an utterance, in this way accelerating the momentum of events. There is evidence also that Lucy may experience some difficulty in locating the TRP of Tina's VOCA mediated turn and she takes action to negotiate this explicitly over a series of turns.

6.2 Tina's initiation of VOCA mediated turns

In this conversation it is apparent that Tina initiates VOCA use outside the location of a second pair part of an adjacency pair. This section of analysis will examine how the operational characteristics of VOCA use and the sequential context in which Tina displays VOCA orientated activity, interact to provide opportunities to launch a VOCA mediated turn or raise the possibility of a VOCA mediated turn coming next. However, despite having successfully initiated access to the conversational floor various problems may be encountered in the development of her VOCA mediated turn. The first example illustrates how such turns may be realised unproblematically. The second example illustrates a particular type of difficulty in realising a turn that appears unique to this conversation. Although Tina's initiation of a VOCA turn has been explicitly recognised Lucy takes action to steer the interaction away from its fruition. In the third example Lucy mistakenly draws on the sequential context evoked by the immediately prior turns as a resource to assist in understanding Tina's actions. Interestingly, this is exactly the type of difficulty that Colin experiences in making sense of Jamal's unilaterally initiated VOCA turn described in extract 9 above (page 126).

The following example demonstrates the fairly unproblematic initiation and realisation of a VOCA mediated turn.

Extract 12 (T&L: 293 – 317)

	293	*	L	⌈what did you colour in⌉
	294	*	T	⌊ ((*orientated to VOCA*)) ⌋
	295	*	T	⌈((*orientated to VOCA*))⌉
	296	*	L	| ((*looking at T*)) |
	297	*		⌊ (1.8) ⌋
	298	*	L	the homework that David gave you
	299	*	T	⌈((*v.slight forward head movement, orientated to VOCA*))⌉((*head drops forward*))
	300	*		⌊ (1.3) ⌋
	301	*	L	⌈ yeh ⌉
	302	*	T	⌊((orientated *to VOCA*))⌋
→	303	*	T	⌈((*sudden onset of large backward head movement, orientating to VOCA and hitting switches*))⌉
	304	*		⌊ (3.6) ⌋
→	305	*	L	⌈you gonna say something⌉
	306	*	T	⌊ ((*orientated to VOCA*)) ⌋
	307	*	T	((*raise eyebrows head moves forward, remains orientated to VOCA with head held forward*))
→	308	*	L	⌈ you gonna say ⌉ ⌈ something ⌉
	309	*	T	⌊ ((orientated to VOCA)) ⌋ ⌊((*head drops further forward*)) ⌋
→	310	*	L	yeh
→	311	*	T	⌈((*switching*))⌉ ***picture***
	312	*		⌊ (32.0) ⌋
→	313	*	L	picture
	314	*	T	((*nods*))
	315	*	L	you coloured⌈ in a picture ⌉
	316	*	T	⌊((*head drops forward, chin on chest, small nod movement*)) ⌋
	317	*	L	yeah

This extract begins with Lucy asking a question, "what did you colour in" (line 293). At the TRP of the turn Tina is orientated towards her VOCA and ongoing scanning VOCA bleeps are sounding. Lucy enters the turn initial pause to reformulate her question by providing candidate answer saying, "the homework David gave you" (line 298). Tina then moves her head forward slightly and 1.3 seconds later her head drops forward more fully. Lucy treats this as a nod and affirmation of the candidate,

saying, "yeh" (line 301). At this point the question and answer exchange is closed and in spite of the ongoing VOCA scanning bleeps sounding here there is no strong implication for who should talk next. It is at this moment that Tina is seen to move her head backward suddenly stiffening her arms and bringing her torso into a more vertical orientation while looking at the VOCA. She then hits her head switch twice but without altering the regular pattern of ongoing VOCA bleeps (line 303). These actions take place over a period of 3.6 seconds. It is not obvious whether Tina is trying to initiate a VOCA turn, or that this action is a consequence of uncontrollable muscle spasm, or that she may be engaged in other operational aspects of VOCA use that are not necessarily concerned with producing a turn. It is the presence of ongoing VOCA bleeps that may contribute to this potential ambiguity. Importantly, it is Lucy who orientates to the possibility that this is the start of a VOCA turn saying, "you gonna say something" (line 305), and in so doing she demonstrates considerable sensitivity to Tina's non-verbal actions and the possibilities for the talk brought about by these actions. Notably, research examining interaction between children using communication aids and adults has commented on the need for adults to show increased responsiveness to aided speakers' actions and their potential communicative intent (Calculator & Dollaghan, 1982; Light, 1985a; Basil, 1992; Pennington & McConachie, 1999). It would seem that here Lucy demonstrates just such sensitivity and responsiveness.

Lucy's question raises the issue of the girls' understanding of, and expectations for, the current status and development of the interaction, as a matter for the interaction itself, functioning then as a meta-interactional question. This action is reminiscent of Colin's use of meta-interactional commands that project Jamal's VOCA use in the production of a question. Here however, it is Tina, the VOCA user, who is seen to initiate a VOCA mediated turn unilaterally so that the sequential context and character of this metatalk is different. Nevertheless the use of a meta-interactional turn highlights an intriguing feature of VOCA mediated interaction and speaking participants' orientation to VOCA mediated talk. Speaking participants may seek to confirm explicitly forthcoming VOCA mediated action. It is possible that this may come about as a response to a slowing of conversational momentum, and the realisation of new expectations for the timing of events, brought about by VOCA

use. Interestingly, this feature of the interaction is also seen in the conversation between Martin and David in chapter 7 below.

Tina is orientated to her VOCA and she raises her eyebrows and her head moves forward slightly (line 307). Lucy reiterates her question, again saying, "you gonna say something" (line 308), signalling some uncertainty about how to treat Tina's prior actions. It would seem that Tina's answer to the meta-interactional question here has some heightened status in that it has significant implications for the development of the talk, particularly because an affirmation will make relevant a very significant turn initial pause. In repeating the meta-interactional question Lucy demonstrates an orientation to the significance of Tina's answer. In overlap with "something" Tina's head drops forward in a more emphatic nod and Lucy makes public her treatment of this action saying, "yeah" (line 310). So, within the sequential context in which a lapse emerges in the exchange of turns a sudden and pronounced physical action in orientation to the VOCA is treated as the possibility of the start of a VOCA turn. The term "lapse" is used to define locations in the conversation where options to speak are not taken up (Sacks et al., 1974). Interestingly, from a natural speaker perspective such locations would represent lapses. However, for Tina, turn initiation is carried out through unspoken physical action. It is the spoken silence that contributes to the perception of a lapse when Tina may actually be engaged in turn initiation.

It is notable that the pattern of events described here is a recurring feature of Tina's unilateral initiation of a VOCA mediated turn. First, this involves Tina initiating VOCA orientated action within a turn taking lapse. Secondly, Lucy explicitly orientates to Tina's actions as potentially initiating a turn and she displays this by asking a meta-interactional question. Thirdly, Tina provides a non-verbal action in answer. Fourthly, Lucy provides a receipt of Tina's answer, and finally a turn initial pause is realised in which pre-beginning elements of the VOCA turn are evident.

Having made public the fact that Tina will produce a VOCA mediated turn next, Lucy waits in silence while Tina works with her VOCA for 32 seconds before producing the single word "***picture***" (line 311). As seen in extract 10 above, following the production of the VOCA mediated utterance Lucy repeats the word,

publicly receipting its production (line 313). In this instance Tina then nods confirming Lucy's receipt as accurate (line 314), and Lucy goes on to locate this word within a short phrase saying, "you coloured a picture" (line 315). In this way Lucy is observed to treat "***picture***" as related to the immediately prior talk and as an answer to her prior question, "what did you colour in (1.8) the homework that David gave you" (lines 293 and 298). Tina is able to use the prior turns as a context within which a single word utterance may be understood and it is the opportunity to initiate this turn at this point in the interaction that provides for its success. Also, in locating "***picture***" within a short phrase and as the object of the phrase Lucy displays her treatment of this single word as signalling the TRP of Tina's turn. Again, Tina confirms this treatment as accurate, with her head dropping forward and in that forward position producing a small nod (line 316) and Lucy provides a receipt for this action saying, "yeah" (line 317). This exchange of turns brings about a shared recognition that Tina's VOCA mediated turn has reached its TRP.

In this instance, then, Tina uses a lapse in the talk to initiate a VOCA mediated turn in development of the theme of the immediately prior question and answer exchange. Tina generates a single word, and its relevance for the talk and the TRP of the turn are negotiated without particular difficulty. In this next extract Tina is also seen to initiate a VOCA mediated turn within a lapse in turn exchange. However, on this occasion the VOCA mediated turn does not come about.

Extract 13 (T&L: 045 – 092)

045	*	L	⌈ do ⌉ ⌈ Lindsey normally take ya ⌉ ⌈ sometimes ⌉
046	*		⌊((*head stops*)) ⌋ ⌊((*head moving v.slightly up & right*)) ⌋ ⌊((*lateral head tremor looking at VOCA*))⌋
047	*	T	⌈((*head drops forward*))⌉
048	*	L	⌊ does ⌋⌈ she go in the water ⌉sometimes
049	*	T	⌊((*head forward and down 2 small bobbing movements decreasing in amplitude*)) ⌋
050	*	T	((*head forward and down turns right towards L and nods*)) (* last bleep in series heard)
051		L	⌈ do you reckon she's going (0.3) today
052		T	⌊((*lifts head slightly in orientation to L*))
053		T	((*head lolls forward and down*))
054		L	or don't you know
055		T	((*large shake of head*))
056		L	don't know

057 T ((*small head nod*))
058 T ⌈((*raises eyebrows, lifts head looking at VOCA*))⌉
059 L | ((*looking forward*)) |
060 ⌊ (2.0) ⌋
061 L °right. °
→ 062 ⌈((*head hits switch and holds switch down*))⌉
063 ⌊ (1.2) ⌋
→ 064 T ((*releases switch*)) * ⌈((*looking at VOCA*))⌉ * ⌈((*looking at VOCA*))⌉ *
065 L | ((*looking ahead*)) | | ((*looking ahead*)) |
066 ⌊ (0.8) ⌋ ⌊ (1.0) ⌋
→ 067 T ⌈((*looking at VOCA*))⌉ *
068 L | ((*looks at T*)) |
069 ⌊ (1.0) ⌋
070 T ⌈ ((*looking at VOCA*)) ⌉ ⌈ *
→ 071 L |((*raises finger and then closes it into a fist*)) | ⌊ you're telling something to me
072 ⌊ (1.2) ⌋
→ 073 * T ((*nods head dropping forward and down*))
→ 074 * L ⌈ yeh
075 * T ⌊((*raises head up to look at VOCA switching*)) ⌈((*switching*))⌉
076 * ⌊ (23.0) ⌋
→ 077 * L did you have a good weekend⌈ as well ⌉
078 * T ⌊((*head drops forward, looking at VOCA*))⌋
079 * ((*head drops further forward, looking at VOCA*))
→ 080 * L yeh
081 * T ((*slight forward nod bringing head further down, closes eyes, raises head, looks at VOCA*))
→ 082 * L ⌈what did you do over the weekend⌉
083 * T ⌊ ((*switching*)) ⌋
084 * T ⌈((*looking at VOCA*))⌉
085 * L | ((*looking at T*)) |
086 * ⌊ (3.0) ⌋
→ 087 * L ⌈shall I um: (1.0) say some words and you stop me⌉
→ 088 * T ⌊ ((*switching*)) ⌋((*nods head*))
→ 089 * L ok
090 * (1.5)
091 * L ⌈ um: did ⌉ you do: (0.5) ⌈ Colouring ⌉
092 * ⌊((*looks away*))⌋ ⌊((*looks at T*))⌋

In order to explicate fully this next example a brief discussion of the turns prior to Tina's turn initiation is required. This extract begins with Lucy asking a question about who takes Tina swimming normally. Lucy asks, "do Lindsey normally take ya sometimes" (line 045) Tina answers with a nod, her head dropping forward (line 047) and Lucy follows this up with a further question, "does she go in the water sometimes" (line 048). With her head maintaining a forward position Tina turns her head towards Lucy and nods (line 050). The VOCA scanning bleeps stop and Lucy asks, "do you reckon she's going (0.3) today" (line 051). Tina's head lolls forward and down and Lucy orientates to this action by asking, "or don't you know" (line 054). Tina shakes her head (line 055) and Lucy provides a candidate treatment of the action saying, "don't know" (line 056), to which Tina nods again (line 057). Subsequently a lapse in the turn taking emerges (line 058/9), and it is this lapse that signals the start of the particular features of interest in this example.

Within the lapse in turn taking Tina raises her eyebrows and then, raising her head slightly, she looks at her VOCA (line 058). Lucy has withdrawn her gaze from Tina and is looking forward (line 059). After 2.0 seconds Lucy enters the lapse saying, "°right.°" (line 061). This is spoken more quietly than her previous talk with falling pitch and Lucy remains looking forward into the middle distance. Although this action brings the lapse to an end it does not provide for the development of the talk. Next, Tina hits her head switch and holds it down (line 062). When she releases it 1.2 seconds later a bleep is generated (line 064). Unlike the example above (extract 12) there are no scanning bleeps sounding here so that this bleep occurs from silence. Approximately 0.8 seconds later a further bleep is heard (line 064), followed by two more bleeps separated by intervals of 1.0 second (lines 064 and 067). Between the third and fourth bleep Lucy looks at Tina, raises her finger, then closes it into a fist and in overlap with the fifth bleep she says, "you're telling something to me" (line 071). Here, then, as observed in extract 12, Lucy makes public her orientation to the possibility that Tina is working with her VOCA and that her next action will be a VOCA mediated turn of some sort. She makes this public with a meta-interactional turn, displaying her orientation to the initiation of VOCA bleeps within the lapse as meaningful and as making a claim to talk next. In this instance the initiation of such bleeps from silence suggests an advantage for Tina as they represent a hearable entry

into the silence. Like extract 12, Lucy's actions here initiate a short three-part sequence in which Tina nods in confirmation of her intention to use her VOCA to say something (line 073) and Lucy responds, again publicly, saying, "yeah" (line 074), making explicit her expectations for the way in which the talk will develop. In this way the initiation of bleeps here are given interactive status, being treated as pre-beginning elements of Tina's forthcoming turn.

However, unlike the initiation of a VOCA turn illustrated in extract 12, Tina's initiation here does not result in the production of a turn. After 23 seconds Lucy enters the turn initial pause before the start of the turn and she does so in a particularly interesting way by asking, "did you have a good weekend as well" (line 077). This action contravenes the agreed and current status of turn distribution and expectations for the next relevant action by being concerned with the introduction of an alternative trajectory for the talk. As a question it implicates an answer. However, the use of "as well" suggests that Lucy continues to recognise the overarching pattern of turn distribution, in that a minimal relevant next answer can be communicated through a nod or shake of the head as a "yes" or "no" answer. In this way the design of Lucy's turn entry acknowledges the pursuit of an answer in parallel with other operational activities of VOCA use and the forthcoming VOCA speech..

This action also introduces a potential ambiguity for how Lucy should treat Tina's next action. For Tina any next action may now be treated as relevant to the inserted question and/or her own initiated turn. Tina is observed to nod her head forward at the first possible TRP of the question and hence in overlap with "as well" (line 079), but she remains orientated to her VOCA. She then nods her head forward again, this time her head falls forward away from her switches. Lucy publicly treats this action as an answer to her question saying, "yeh" (line 080), and subsequently Tina is observed to nod her head forward slightly again and raise her head towards her head switches looking at the VOCA (line 081).

Lucy then enters the turn initial pause for the second time with a further question, this time asking, "what did you do over the weekend" (line 082). This second question is one that requires a VOCA mediated answer. This question evokes a

conflict with the initial agreement for the talk by introducing alternative possibilities for what might happen next. In this way Lucy's actions introduce a new sequential context within which she might treat Tina's VOCA orientated actions. By her second question she sets up Tina's next VOCA mediated turn as an answer to a question about what she did at the weekend, thus challenging Tina's ability to continue with the turn she has initiated. Tina does not obviously respond to this action but remains looking at her VOCA (line 084). After a pause of three seconds Lucy enters the turn initial pause for the third time and asks yet another question, this time proposing, "shall I um: (1.0) say some words and you stop me" (line 087). This action explicitly proposes a strategy with which the girls can develop the talk. This removes entirely the explicitly negotiated expectation that Tina will produce a turn. Tina is observed to endorse this course of action by nodding (line 088) abandoning her initial independent initiation of a VOCA mediated turn.

Lucy's actions here assume the responsibility for developing the conversation rather than waiting for Tina to develop her turn further. In assuming this responsibility Lucy proposes a specific strategy for taking the conversation forward. In saying ""shall I um: (1.0) say some words and you stop me" (line 087), she proposes an organisation for the interaction whereby Tina can contribute through non-verbal actions in response to Lucy's candidates. So, for Tina it appears that, despite the publicly negotiated status of the interaction, the pre-beginning aspects of her self-initiated turn possess a vulnerability. This is revealed first in the way that Lucy enters the turn to ask a question, albeit one that can be answered without altering the overall trajectory for the talk, and secondly in the way in which Lucy steers the conversation away from VOCA use.

The third example of Tina's initiation of a VOCA mediated turn demonstrates further the common pattern of events observed in both previous examples. This example also illustrates problems that Lucy experiences in understanding the content of the turn and the type of conversational work it is doing. In the same way that Colin experienced difficulty in understanding Jamal's unilaterally initiated VOCA turn, in part because he misconstrued its relationship with the prior talk, so Lucy struggles to grasp the intention of Tina's actions and how they relate to the prior talk.

The start of the sequence of interest in this discussion begins at line 168. In order to appreciate the problematic aspects of this particular exchange the prior sequence of turns is presented. In brief, in the exchange of turns prior to Tina's initiation of a VOCA mediated turn the girls engage in a question and answer sequence whereby Lucy offers candidates concerning what Tina had for dinner, such as "pie" (line 130), fish (line 133), "meat" (line 136), "carrots" (line 138), "roast potatoes" (line 147) and "veg" (line 152), and Tina provides a non-verbal signal of rejection or acceptance for each candidate. The exchange then takes on a different quality with Tina not obviously nodding or shaking her head (line 154) and Lucy whispering to her (157). Lucy then completes this particular exchange with a more public statement saying, "ya ↑just said you had (0.5) err carro(h)ts:" (line 159), and following Tina's confirmation of this with a head nod (line 160), Lucy introduces a new theme by asking, "was you bored at home or was you (1.0) did you wanna come back to school" (lines 168 and 172).

Like many examples of VOCA use this extract occupies several pages. Consequently, the full transcript is presented first and then relevant segments of the extract will be represented within the body of the text.

Extract 14 (T&L: 128 – 271)

128	L	= can I guess what you had for dinner
129	T	((*head still down smiles and makes small head nod movement*))
130	L	⌈ pie ⌉
131	T	⌊((*smiling head is raised slightly and sways left*))⌋
132	T	((*smiling shakes head*))
133	L	⌈ fish ⌉
134	T	⌊((*smiling shaking head*))⌋
135	T	((*shakes head & hits switch double click hears no bleeps*))
136	L	meat
137	T	((*head drops forward*))
138	L	carrots
139	T	((*looking forward head sways back & forward slightly, turns towards L small nod*)) ⌈((*nods*))
140	L	⌊ carrots ((*nods towards T*))

141 L ⌈umm:
142 | ((*head turns away from T*))
143 T ⌊((*starts raising head slowly*))
144 L ⌈ ((*looking away from T then turns back to face T*))⌉
145 T | ((*raising head slowly*)) |
146 ⌊ (2.0) ⌋
147 L roast potatoes
148 T ((*nods smiles lifts head up turning away from L slightly & hits* switch))
149 L ⌈°umm° ⌉
150 | ((*looks away*)) |
151 T ⌊((*looks at L eyebrows raised*)) ⌋
152 L ((*looks at T*)) ⌈veg
153 T ⌊((*small forward head movement*))
154 T =⌈((*holds head still looking at L eyebrows raises lifts head up very slightly and moved head forward very slightly*))⌉
155 L | ((*looking at T*)) |
156 T ⌊ (4.9) ⌋
157 L ((*raises eyebrows*)) °(unintelligible) °
158 T ((*small sideways head movement*))
159 L ya ↑just said you had (0.5) err carro(h)ts: ((*raises shoulders smiles*))
160 T ((*head drops forward chin ending on chest*))
161 (2.0)
162 L ↑yeh
163 T ((*head down small nod*))
164 (0.9)
165 L um:
166 T ⌈((*raises head up to between head switches*))⌉
167 ⌊ (2.8) ⌋
168 L ⌈ was ⌉ you ⌈ bored ⌉ at home or was you:
169 T ⌊((*hits switch no bleep*))⌋ ⌊((*hits switch no bleep*))⌋
170 ⌈((*orientated to VOCA*))⌉
171 ⌊ (1.0) ⌋
172 L did⌈you wanna come back to school ⌉
173 ⌊ ((*raises arms*)) ⌋
174 T ((*nods head falling forward with chin down to chest*))
175 L ((*looks away*))
→ 176 T ⌈((*lifts head up looking at VOCA, hits switch twice*))⌉* ⌈ ((*orientated to VOCA, switching*))⌉
177 L | ((*looking away*)) | ⌊ ((*looks at T*)) ⌋
178 ⌊ (3.0) ⌋

→	179		L	y a g⌈un⌉na say something =
	180			⌊* ⌋
	181		T	⌈ * ⌉
	182			⌊((*small head movement forward & back*)) ⌋
	183		T	⌈((*looking at VOCA, hits switch*))⌉ *
	184			⌊ (0.8) ⌋
→	185		L	ya gonna⌈say ⌉something
	186			⌊* ⌋
	187		T	((*nods looking at VOCA*))
→	188		L	⌈yes⌉
	189			⌊* ⌋**
→	190	*	T	⌈((*switching*))⌉ ***g*** ⌈((*switching*))⌉
	191	*		⌊ (29.7) ⌋ ⌊ (2.2) ⌋
	192	*	L	⌈ g ⌉
	193	*	T	⌊ ((*switching*)) ⌋
→	194	*	T	⌈((?*small nod*? *switching*))⌉ ***r*** ⌈((*switching*))⌉ ***e***
	195	*		⌊ (12.4) ⌋ ⌊ (12.9) ⌋
→	196	*	T	⌈((*switching*))⌉ ***e*** ⌈((*looking at VOCA*))⌉
	197	*		⌊ (12.9) ⌋ ⌊ (3.2) ⌋
	198	*	L	is there two es⌈ in it ⌉
	199	*	T	⌊((*head starts to drop forward*)) ⌋
	200	*		((*nods head forward*))
	201	*	L	yeah
→	202	*	T	⌈((*lifts head up and continues switching*)) ⌉ ***n***
	203	*		⌊ (4.3) ⌋
	204	*	T	⌈((*switching*))⌉
	205	*		⌊ (2.9) ⌋
→	206	*	L	⌈is that all the word⌉
	207	*	T	⌊ ((*switching*)) ⌋
→	208	*	T	⌈((*switching*))⌉ ***green***
	209	*		⌊ (0.9) ⌋
	210	*	T	⌈((possibly *looking at L*))⌉
	211	*		⌊ (1.9) ⌋
	212	*	L	green.
	213	*	T	((*head nods forward*))

214 * L ⌈ ((*looking forward*)) ⌉

215 * T |((*raises head slowly*))|

216 * ⌊ (4.2) ⌋

→ 217 * L ⌈is it something that you (wore/brought) ⌉

218 * T ⌊ ((*looking at VOCA*)) ⌋ ((*sideways head movement, looking at VOCA*))

219 * L ⌈you went out and saw a green ((*raises hand*)) ⌉

220 * ⌊ ((*switching/looking at VOCA*)) ⌋

→ 221 * T ((*switching*)) *s*

222 * T ⌈((*switching*))⌉

223 * ⌊ (3.4) ⌋

224 * L ⌈ o:h: =

225 * T ⌊((*switching*))

226 * = (buzz from VOCA)

227 * T ⌈((*switching*))⌉

228 * ⌊ (4.2) ⌋

229 * T ⌈((*switching*))⌉

230 * ⌊ (3.3) ⌋

→ 231 * L ⌈(3 syllables) a picture of <u>green</u> ⌉

232 * T ⌊ ((*switching*)) ⌋

233 * T ((*shakes head orientated to VOCA*))

234 * L no

235 * T ⌈((*switching*))⌉

236 * ⌊ (5.4) ⌋

→ 237 * L ⌈um: ⌉ ⌈ (3.0) ⌈°I don't know°

238 * T ⌊((*switching*))⌋ ⌊((*switching*)) ⌊((*switching*))

239 * T ⌈ ((*switching*)) ⌉

240 * ⌊ (2.1) ⌋

→ 241 * L do I know what it is

242 * T ((*nods*))

243 * (0.8)

→ 244 * T ⌈ is it that cardboard thing over there ⌉

245 * L ⌊ ((*switching*)) ⌋

246 * T ⌈((*looking at VOCA*))⌉

247 * ⌊ (2.7) ⌋

248 * T °no°

249 * L ((*activates switch*))

250 * L I know what it is

	251	*		((*forward head movement, remains looking at VOCA*))
→	252	*	L	is it (.) i:s it in school =
→	253	*	T	***dinner***
	254	*	T	⌈((*?looking at VOCA?*))⌉
	255	*	L	| ((*looking at T*)) |
	256	*		⌊ (2.1) ⌋
→	257	*	L	gr↑een ↑din↓ner
→	258	*	T	⌈((*small forward head movement*))⌉ ***greens dinner***
	259	*		⌊ (2.4) ⌋
→	260	*	L	f°h (0.2) >what ya<
	261	*	T	⌈((*?looking at L small nods twice?*))⌉
	262	*		⌊ (2.5) ⌋
→	263	*	L	um you had (.) um (2.7) you ha:d veg
→	264	*	T	((*large nod forward, chin dropping to chest & sigh*))
	265	*		(1.1)
	266	*	L	oh
	267	*	L	⌈ ((*looking forward*)) ⌉
	268	*	T	| ((*raises head & smiles*))|
	269	*		⌊ (2.4) ⌋
	270	*	L	⌈did you ⌉wa:tch: (1.6) ⌈any: (3.7) ⌈ um: any videos ⌉
	271	*	T	⌊ ((*smile*)) ⌋ ⌊((*hits head switch*)) ⌊((*orientated to VOCA*))⌋

So, Lucy asks "was you bored at home or was you (1.0) did you wanna come back to school" (lines 168 and 172). Tina's head falls forward in an apparent nod (line 174) and Lucy look away into the middle distance (line 175). At this point there is no identified relevant next speaker, and as observed in extract 13 above Lucy has withdrawn her gaze from Tina. Over the next three seconds Tina lifts her head up and after hitting her head switch twice, generates a VOCA bleep (line 176). Following the bleep Lucy returns her gaze to Tina and offers a meta-interactional question asking, "ya gunna say something" (line 179). Like extracts 12 and 13 above this question serves to make the structure of the interaction and the participants' expectations for how the interaction will develop a matter for the talk itself. A second bleep is heard in overlap with Lucy's turn and Tina is observed to move her head forward and back slightly, perhaps in confirmation of Lucy's question (line 182), and a further bleep is heard in parallel with this action. Lucy repeats her

question, "ya gunna say something" (line 185) displaying her treatment of Tina's slight head movement following her first question as possibly ambiguous. As seen in extract 12 and 13 Lucy shows sensitivity to the potential communicative intent brought about by Tina's actions. Tina then nods her head forward, while remaining orientated to the VOCA (line 187), and Lucy makes public her treatment of this action saying, "yes" (line 188). Like extract 13, Tina initiates VOCA generated bleeps into the silence at a point at which Lucy has withdrawn her gaze and a lapse in the turn taking has emerged. This bleep appears to draw Lucy's gaze to Tina with Lucy then explicitly orientating to the possibility of the initiation a VOCA mediated turn. In retrospect it is possible that Tina was engaged in actions of initiation earlier than identified by Lucy. The evidence for this supposition is seen in Tina raising her head up to between her head switches (line 166) in the 2.8 seconds before Lucy asks "was you bored at home or was you (1.0) did you wanna come back to school" (lines 168 and 172). The activation of her head switches twice in parallel with "was" and "bored" (see line 169) may represent the pre-beginning element of the VOCA turn.

A turn initial pause of 29.7 seconds now develops during which time Tina works with her device and ongoing VOCA scanning bleeps are sounding. Again, this is a very significant period of time in comparison with the possible standard maximum silence of approximately one second observed in conversation between speakers (Jefferson, 1989). During this time Lucy waits in silence. Then, Tina generates the single letter "***g***" (line 190). This event and the subsequent turns are illustrated in segment 14.1 below.

Segment 14.1 (T&L: 190 – 216)

→	190	*	T	⌈((*switching*))⌉ ***g*** ⌈((*switching*))⌉
	191	*		⌊ (29.7) ⌋ ⌊ (2.2) ⌋
	192	*	L	⌈ g ⌉
	193	*	T	⌊((*switching*))⌋
→	194	*	T	⌈((*?small nod? switching*))⌉ ***r*** ⌈((*switching*))⌉ ***e***
	195	*		⌊ (12.4) ⌋ ⌊ (12.9) ⌋
→	196	*	T	⌈((*switching*))⌉ ***e*** ⌈((*looking at VOCA*))⌉
	197	*		⌊ (12.9) ⌋ ⌊ (3.2) ⌋
→	198	*	L	is there two es⌈ in it ⌉
	199	*	T	⌊((*head starts to drop forward*))⌋

	200	*		((*nods head forward*))
→	201	*	L	yeah
	202	*	T	⌈((*lifts head up and continues switching*))⌉ ***n***
	203	*		⌊ (4.3) ⌋
	204	*	T	⌈((*switching*))⌉
	205	*		⌊ (2.9) ⌋
→	206	*	L	⌈is that all the word⌉
	207	*	T	⌊ ((*switching*)) ⌋
→	208	*	T	⌈((*switching*))⌉ ***green***
	209	*		⌊ (0.9) ⌋
	210	*	T	⌈((*?looking at L?*))⌉
	211	*		⌊ (1.9) ⌋
→	212	*	L	green.
	213	*	T	((*head nods forward*))
	214	*	L	⌈ ((*looking forward*)) ⌉
	215	*	T	⌈((*raises head slowly*))⌉
	216	*		⌊ (4.2) ⌋

After 2.2 seconds Lucy repeats the letter saying, "g" (line 190) making public her hearing of it. In extract 11 above Tina produced the letter "***m***" and Lucy guessed at the reminder of the word. In that episode of talk Tina's VOCA mediated turn was developed as an answer to a specific type of question and therefore within a sequential context in which its possible content and conversational function were restrained. Interestingly, in Tina's unilateral initiation of a VOCA mediated turn the sequential context does not obviously support an early anticipation of the forthcoming word, and Lucy waits in silence.

Tina then spells out the letters "***r***", "***e***", "***e***" separated by pauses of 12.4, 12.9 and 12.9 seconds respectively (lines 194-196). The turn is progressing extremely slowly here with significant pauses evident between the letters of single word. Then, 3.2 seconds after the production of the second "***e***" (line 196), Lucy enters the turn asking, "is there two "es" in it" (line 198). This is the second occasion that Lucy has demonstrated uncertainty in how she should treat Tina's actions. The first instance concerned whether or not Tina's was actually initiating some talk (line 179). Here the issue for Lucy is how she should hear the production of the second "***e***". That is,

whether it is an intended action, and therefore how she should treat the next letter within the sequence of letters so far. Here, Lucy shows sensitivity to the fact that what she hears from the VOCA may not be the intended output. She appears to recognise the activity of VOCA use as a potentially problematic issue and that Tina is engaged in an interaction with her device that may produce difficulties for the interaction more generally. This question precipitates a short exchange in which Tina nods her head forward (line 200) and Lucy explicitly receipts the action saying, "yeah" (line 201).

After 4.3 seconds Tina generates the letter "***n***" (line 202). Lucy explicitly orientates to the possibility that this might represent the end of the word asking, "is that all the word" (line 206). In so doing she shows how she is actively monitoring the development of the turn so far and how she has to work to determine the end of the word and the status of the TCU towards possible completion. Also, this action is the third occasion that Lucy seeks to clarify the status of Tina's VOCA mediated utterance. Tina confirms this treatment of the turn generating the spelled word in full, "***green***" (line 208), 0.9 seconds later. It is not possible to state for certain whether Tina then looks at Lucy but it is clear that 1.9 seconds after Tina's production of "***green***" Lucy provides an explicit receipt of the word and her hearing of the VOCA mediated events so far, saying "green" (line 212). Tina nods in response, her head dropping forward (line 213). In the next 4.2 seconds Tina is seen to raise her head slowly and Lucy withdraws her gaze from Tina and looks into the middle distance.

The next sequence of events is presented in segment 14.2 below.

Segment 14.2 (T&L: 217 – 248)

→	217	*	L	⌈is it something that you (wore/brought)⌉
	218	*	T	⌊ ((*looking at VOCA*)) ⌋ ((*sideways head movement, looking at VOCA*))
	219	*	L	⌈you went out and saw a green ((*raises hand*))⌉
	220	*		⌊ ((*switching/looking at VOCA*)) ⌋
→	221	*	T	((*switching*)) ***s***
	222	*	T	⌈((*switching*))⌉
	223	*		⌊ (3.4) ⌋

→	224	*	L	⌈ o:h =
	225	*	T	⌊((*switching*))
	226	*		= (buzz from VOCA)
	227	*	T	⌈((*switching*))⌉
	228	*		⌊ (4.2) ⌋
	229	*	T	⌈((*switching*))⌉
	230	*		⌊ (3.3) ⌋
→	231	*	T	⌈(you done a) a picture of <u>green</u> ⌉
	232	*	L	⌊ ((*switching*)) ⌋
	233	*	T	((*shakes head orientated to VOCA*))
	234	*	L	no
	235	*	T	⌈((*switching*))⌉
	236	*		⌊ (5.4) ⌋
→	237	*	L	⌈um: ⌉ ⌈ (3.0) ⌈°I don't know°
	238	*	T	⌊((*switching*))⌋ ⌊((*switching*)) ⌊((*switching*))
	239	*	T	⌈ ((*switching*)) ⌉
	240	*		⌊ (2.1) ⌋
→	241	*	L	do I know what it is
	242	*	T	((*nods*))
	243	*		(0.8)
→	244	*	T	⌈ is it that cardboard thing over there ⌉
	245	*	L	⌊ ((*switching*)) ⌋
	246	*	T	⌈((*looking at VOCA*))⌉
	247	*		⌊ (2.7) ⌋
	248	*	T	°no°

Having confirmed that "***green***" is the whole word the interactional questions for Lucy here become: what does "***green***" refer to precisely, and what type of activity is this turn doing? It is recognised that participants in conversation orientate to the sequentiality of interactional events, that is, the way in which turns are constructed to display their relationship with the immediately prior turn and project a sequential implication for what might come next (Schegloff, 1984b; Schegloff, 1988). Lucy's orientation to the sequential context as a means for understanding the VOCA mediated utterance is shown when she speaks next asking, "is it something that you (wore/bought)" (line 217). Lucy is seen to treat "***green***" as new information related

to the earlier exchange concerned broadly with Tina's weekend activity. It is not possible to make a definite claim about the final word of this utterance. In particular there is an uncertainty as to whether Tina is saying, "wore" or "bought". Despite this ambiguity, it is apparent that she treats Tina as the subject of her own VOCA mediated utterance. For Lucy, a clue to the identification of the meaning of Tina's utterance resides in identifying an accurate verb, and that, by inference, "***green***" is treated as an adjective that serves a noun phrase. The noun is the missing "something" that was or bought or worn. In an analysis of request sequences by a man with aphasia Goodwin (1995) displays how participants orientate to the sequential context in attempting to make sense of the aphasic participant's actions. Goodwin notes that in guessing what the aphasic speaker was attempting to communicate his co-participant may use the current activity as an inferential resource to infer meaning. It is just this type of "interpretive framework" (Goodwin, 1995) that Lucy can be seen to be using in her guessing strategy by attempting to understand Tina's utterance within the context of the prior turn.

At the time that Lucy asks this question Tina is looking at her VOCA and at the TRP of the question she produces a sideways head movement while still looking at her VOCA. Lucy implicitly treats this action as a rejection of the guess evidenced in her offering a new alternative, "you went out and saw a green" (line 219). Latched to the end of her syntactically incomplete turn Lucy raises her hand and moves it from left to right in a gliding movement that matches the tempo of the spoken turn. This action conveys the sense of marking the location of the unspoken and unknown target of her guessing, and that it is a single noun. Again, perhaps unsurprisingly Lucy is treating "***green***" as an adjective and as being related in some way to Tina's weekend activities. She uses the verb "saw" to locate the missing noun as the object of the sentence and again Tina as its subject. Tina does not respond to this guess and next generates the single letter "***s***" (line 221).

It became evident that Lucy experiences difficulty identifying the intended function of this letter including, for example, whether it is the start of a new word or not. Tina continues working with her VOCA for a further 3.4 seconds before Lucy says, "o:h" (line 224). The use of "oh" marks a change of state (Heritage, 1984a) probably bought about by "***s***". However, she does not mark the type of change or the

significance of this new letter to her possible new state of understanding. Immediately following "o:h" a short buzz is heard from the VOCA. Such sounds are indicative typically of an operational error made in VOCA use. The girls do not obviously orientate to this sound as relevant or a particular problem for the interaction.

Approximately 7.5 seconds later, and in parallel with Tina's switching activity, Lucy offers a further candidate, saying, "(you done a) a picture of green" (line 231), again apparently positioning the term "***green***" as an adjective that accompanies a single object noun. Tina is seen to shake her head here (line 233) and Lucy publicises her treatment of this action by saying "no" (line 234). Tina continues switching.

When Lucy speaks again, it is more quietly than the surrounding talk and says, "um (3.2) °I don't know°" (line 237). She follows this up 2.1 seconds later with a direct question demonstrating her difficulties in orientating to the meaning and intention of the VOCA mediated events based on a review of her own insights into Tina's utterance by asking, "do I know what it is" (line 241). This turn also questions explicitly the value of continued guessing. It offers the possibility of stopping guessing and waiting for the next element(s) of the utterance to be produced. Again, it implies also that Lucy is orientating to the meaning of Tina's turn as a noun and new information. In response Tina nods (line 242), which authorises further guesses and implicitly endorses Lucy's framework for interpreting the turn. Consequently, Lucy offers yet another candidate, this time guessing "is it that cardboard thing over there" (line 244). Notably, she now shifts the setting for her guessing away from weekend activities to the room in which they are sitting and the possibility that Tina might be initiating a new topic. Tina does not obviously respond to this question and 2.7 seconds later Lucy treats a lack of obvious response as a rejection of the candidate quietly saying, "°no°" (line 248). The subsequent series of events is presented in segment 14.3.

Segment 14.3 (T&L: 250 – 271)

→	250	*	L	I know what it is
	251	*		((*forward head movement, remains looking at VOCA*))
→	252	*	L	is it (.) i:s it in school =
→	253	*	T	***dinner***
	254	*	T	⌈((*?looking at VOCA?*))⌉
	255	*	L	⌈ ((*looking at T*)) ⌉
	256	*		⌊ (2.1) ⌋
→	257	*	L	gr↑een ↑din↓ner
→	258	*	T	⌈((*small forward head movement*))⌉ ***greens dinner***
	259	*		⌊ (2.4) ⌋
→	260	*	L	f°h (0.2) >what ya<
	261	*	T	⌈((*?looking at L small nods twice?*))⌉
	262	*		⌊ (2.5) ⌋
→	263	*	L	um you had (.) um (2.7) you ha:d veg
→	264	*	T	((*large nod forward, chin dropping to chest & sigh*))
	265	*		(1.1)
	266	*	L	oh
	267	*	L	⌈ ((*looking forward*)) ⌉
	268	*	T	⌈ ((*raises head & smiles*))⌉
	269	*		⌊ (2.4) ⌋
	270	*	L	⌈did you ⌉wa:tch: (1.6) ⌈any: (3.7) ⌈ um: any videos ⌉
	271	*	T	⌊ ((*smile*)) ⌋ ⌊((*hits head switch*)) ⌊((*orientated to VOCA*))⌋

Lucy revisits the question of her state of knowledge and the relevance of continued guessing saying again, "I know what it is" (line 250). Lucy treats Tina's subsequent small forward head movement as a confirmation and goes on to evoke explicitly a new setting or "interpretative framework" (Goodwin, 1995), in which she might locate further guesses by asking, "is it (.) i:s it in school" (line 252). In using the article "it" she signals her continued treatment of "***green***" as an adjective and that she is seeking a missing noun.

Almost immediately following from this question Tina generates a new VOCA word "***dinner***" (line 253). Lucy treats this new word as an addition to the prior VOCA utterance "***green***", but, interestingly, without inclusion of the single letter "***s***". Her

difficulty in establishing the relationship between the two elements and the absurdity of their combined meaning is evident in the significant and exaggerated rise and fall in pitch movement in her receipt of the turn so far saying, "gr↑een ↑din↓ner" (line 257). So, although the single words are intelligible the relationship between them is uncertain and the interactional function of the turn so far is unclear.

Finally, Tina combines the two words "***green***" and "***dinner***" and reveals the critical function of the single letter "***s***" as marking the plural of green, generating, "***greens dinner***" (line 258). When Lucy speaks again the laugh tokens embedded in the start of yet another guess "f°h (0.2.) >what ya<" (line 260) suggest that at this point she is still struggling to understand the utterance. Finally, Lucy appears to grasp the meaning and intent of Tina's actions saying, "um you had (.) um (2.7) you ha:d veg" (line 263). Tina produces a large nod forward, her chin dropping to her chest and she sighs and remains in that position (line 264). Lucy then signals her change in understanding saying "oh" (line 266) and over the next 2.4 seconds Tina raises her head and smiles. Lucy then closes this particular exchange by asking a new question, "did you wa:tch: (1.6) any: (3.7) um: any videos" (line 270).

To summarise this exchange, it transpires that Tina has been attempting to return to the prior talk about what she had for dinner (lines 128-163). Lucy has significant difficulty understanding the type of activity underway. She treats "***green***" (line 208) as relating to the immediately prior talk concerned with Tina's weekend and as moving the conversation forward within that theme. She not only misconstrues how the turn is related to the prior talk but also the syntactic property of the word "***green***", treating it as an adjective when it is intended as a noun. Furthermore, she does not orientate to Tina's addition of the single letter "***s***" (line 221) as changing "***green***" to "***greens***". This is possibly because the girls have already engaged in work to confirm that green is the completed word (lines 206-213). Indeed, she does not appear consider the potential contribution of this letter to the utterance more generally. This is seen in her actions following Tina's production of "***dinner***" (line 253) where she does not include the letter "***s***" in her combined treatment of the utterance so far, "gr↑een ↑din↓ner" (line 257). Lucy struggles to understand the relationship between the two words. This difficulty and the apparent absurdity of the

combined elements "***greens***" and "***dinner***" is seen in the exaggerated rise and fall in pitch when she combines the elements of the turn saying, "gr↑een ↑din↓ner" (line 257). It appears that these difficulties arise specifically because Tina is unilaterally initiating a VOCA mediated turn and that the relationship of this new turn to the prior talk is ambiguous for Lucy. It is notable that when Tina's VOCA mediated utterance is generated within a clearly defined sequential context, for example following a question, such difficulties are less likely. Interestingly, similar difficulties to those described here have been observed in research using a Conversation Analysis approach to the study of interaction involving adults with dysarthria using VOCAs and their partners (Bloch & Wilkinson, in press). Bloch and Wilkinson observe that use of VOCA generated speech may improve the intelligibility of dysarthric speech but does not necessarily improve the "understandability" of the VOCA users message. For Lucy, the word "green" had been identified but the question of how it should be understood remained unanswered for some considerable time, and both children engaged in considerable extra work to reach a shared understanding about the meaning of Tina's turn.

Tina cues Lucy into the sequential context in which her turn is to be understood by producing the word "***dinner***". This word matches exactly the term used in the original proposal for the guessing sequence "can I guess what you had for dinner" (line 128), to which Tina now wishes to re-refer. She does not use this element as a straightforward syntactic addition to the turn but she employs it to signal the sequential relationship between her current action and the prior talk. Tina demonstrates an ability and need to use a basic single word utterance to do more than the task of referent construction. Collins (1996) has identified similar strategic use of communication aid mediated utterances by non-speaking adults with Cerebral Palsy using communication aids. In Collin's study the aided speakers were also seen to use noun phrases to signal the conversational context of the communication aid mediated utterance. It would seem that in the conversation between Tina and Lucy, Tina demonstrates significant competence in using this noun phrase to point to the sequential context in which her actions should be understood.

6.2.1 Summary

Tina may unilaterally initiate VOCA mediated turns and shows some considerable ability in doing so. Interestingly, the initiation of VOCA generated turns recurrently occurs during a turn taking lapse. In this sequential location Lucy is seen to treat Tina's initiation of VOCA orientated activity, and in two instances the initiation of VOCA bleeps from silence, as possibly initiating a turn. She seeks to align herself accurately and publicly to the possibilities for the conversation brought about by Tina's actions by asking explicitly about the status of these actions. Therefore meta-interactional questions such as "ya gunna say something" occur regularly in this context. Tina is observed to answer such questions with a non-verbal signal and Lucy receipts these actions publicly. Subsequently the realisation of a large turn initial pause attributable to Tina and occupied by pre-beginning elements of her turn is evident. It is within this type of sequential context only and through this recurring sequence of events that Lucy initiates VOCA mediated turns unilaterally. As such, it would seem that limited sequential opportunities are available to Tina to locate VOCA use within the pattern of the talk.

Initiation of VOCA bleeps from silence suggests an advantage for Tina by allowing them to be heard as pre-beginning elements of the turn, and Lucy is seen to orientate to these by returning her gaze to Lucy and explicitly orientating to the possibility of VOCA use. It would seem that the ongoing sounding of scanning bleeps might mask other actions and other bleeps signalling possible turn initiation. One of the three examples identified in these data display such an initiation, and this differs from the others in that Lucy has not withdrawn her gaze at that point and Tina engages in an exaggerated physical shift towards switch use.

It has been observed also that having initiated a turn its full and unproblematic completion may come about but is not guaranteed. The inherent sequentiality of conversational interaction is a resource and a problem for Tina. In extract 12, the first example, Tina generates a single word "***picture***" and Lucy is observed to understand this word and treat it accurately based on its relationship with the immediately prior talk. In extract 13, the second example, it was shown that despite the explicit recognition that Tina has initiated a turn, Lucy takes action to guide the

interaction away from the relevance of a VOCA mediated turn and towards a question and answer exchange where Tina may participate through non-speech actions and within which VOCA use is less relevant. In this way the responsibility for developing the interaction is taken on by Lucy. In extract 14, the third example, Lucy's orientation to the immediately prior context in interpreting Tina's utterance is misleading. Here the sequentiality of conversation presents a barrier to understanding. Lucy treats Tina's actions as initiating new talk related to the immediately prior exchange, when Tina is returning to an earlier part of their conversation. Lucy experiences significant difficulty in understanding the relationship between elements within the turn and the type of turn underway. It is notable that these types of difficulty were not observed in Tina's VOCA use related to the immediately prior talk (extract 12) or were produced in a clearly defined sequential context following a question. Furthermore, the significance of the immediately prior context as a resource for Lucy in understanding Tina's VOCA mediated utterances is emphasised when Tina employs the strategic use of single words, letters and limited syntax in VOCA use.

Having focused on the realisation of VOCA mediated turns used in answer to Lucy's questions or initiated as new turns in their own right, analysis now considers how the conversation progresses when the VOCA is not used.

6.3 Lucy's reformation of questions

In the discussion of Lucy's use of first pair parts that require VOCA mediated second pair parts (see section 6.1, page 143) it was evident that, on one occasion, Lucy reformulates her question making a different type of VOCA mediated answer relevant (extract 11, page 151). The feature whereby an original question is reformed to alter what might relevantly come next was also observed in the conversation between Jamal and Colin. In that instance Colin asks a question, one that requires VOCA use to answer and subsequently provides a candidate answer to his own question (extract 3, page 88). This feature of the interaction is a recurring trait of Tina and Lucy's conversation more generally, and most commonly such reformations provide possibilities for the answer to be given non-verbally rather than

through VOCA use. Two examples of this feature are presented below. Consider first extract 15.

Extract 15 (T&L: 448 – 464)

→	448	L	un what else did you do:
	449		(0.3)
→	450	L	what did you do on Friday 'cause I weren't here on Friday
	451		(0.6)
→	452	L	tell me
	453	T	⌈((*head moves forward slightly*))⌉
	454		⌊ (1.2) ⌋
→	455	L	on your⌈ delta talker
	456		⌊((*head drops further forward*))
→	457	T	⌈((*head rises back up to headrest and falls forward again remaining forward, slowly starts to raise head*))⌉
	458		⌊ (2.9) ⌋
→	459	L	did um you go in the: sensory room
	460	T	((*lateral head movement, ?looking at L?*))
	461	L	no
	462		(0.4)
	463	L	who wer'n in the⌈ sensory room ⌉⌈ no ⌉one
	464	T	⌊((*small lateral head movement*))⌋ ⌊((*shakes head hits switch no bleep*))⌋

This extract begins with Lucy asking the question, "un what else did you do: (0.3) what did you do on Friday 'cause I weren't here on Friday" (lines 448 and 450). Clearly, Tina cannot satisfy the sequential implication of this turn without using her VOCA. Just 0.6 seconds after the TRP of this question Lucy speaks again providing an unequivocal statement of her expectation for the next action, but without altering the sequential implicative of the initial question, saying, "tell me" (line 452). In the 1.2 seconds following this action Tina is observed to move her head forward slightly, before Lucy enters the turn again adding, "on your Delta Talker" (line 455), Delta Talker being the name of the VOCA. In parallel with the last word of the turn, "Delta Talker", Tina's head drops forward in a movement typically treated as an affirming nod.

Tina then starts to raise her head, introducing the possibility that she is starting to orientate to her head switches in alignment with the request for VOCA use. Next, her head falls forward and she starts to raise her head again. After 2.9 seconds, a relatively short time in the sequential context in which a VOCA mediated utterance is due, Lucy offers a candidate answer to her own question, "did um you go in the: sensory room" (line 459). This action offers the possibility of Tina producing a non-speech action in answer and can be achieved relatively promptly. Tina produces a lateral head movement next and Lucy make public her treatment of this action saying, "no" (line 461) before asking a further question that implicates a non-speech answer as a minimal and relevant next turn saying, "who wer'n in the sensory room no one" (line 463). So, despite Lucy's very explicit initial allocation of turn, turn type and mode of turn construction to Tina, Lucy takes action to guide the interaction away from the requirement for VOCA use.

The possibility for the pause following "on your Delta Talker" (line 455) expanding for many seconds (e.g., see extract 10) is a reality here. In contrast, following the reformed question a non-speech action becomes an appropriate way to take the next turn thus increasing the likelihood that the answer will arrive more promptly, reducing the possibility of a large inter-turn gap opening here. In this instance Lucy is observed to alter the answerability of the initiated turn.

Similar observations have been made in the analysis of interaction between children using communication aids and adults (Harris, 1982; Light et al., 1985a; von Tetzchner & Martinsen, 1996). In such instances the initial questions were reformed to one or a series of subsequent questions described as "yes/no" questions. In each of these studies the authors propose that one consequence of these actions is that the conversation may progress more rapidly than would be expected if the children used their communication aids to answer the original question. Interestingly, in light of the analysis of VOCA mediated turns it seems that, in addition to altering the speed with which the question may be answered, Lucy's actions also set up an answer that may be generated relatively unambiguously and its point of completion recognised unequivocally. As such this feature of the interaction demonstrates how Lucy organises the interaction so that VOCA use is evoked but does not come about.

Now consider the second example presented in extract 16 below. Elements of this extract were presented previously in the discussion of Tina's initiation of VOCA mediated turns (see extract 12) but were provided to inform the reader of the sequential context to the main features under scrutiny. Here this exchange is the central focus of analysis.

Extract 16 (T&L: 293 - 302)

→	293	*	L	⌈what did you colour in⌉
	294	*	T	⌊ ((*orientated to VOCA*)) ⌋
→	295	*	T	⌈((*orientated to VOCA*))⌉
	296	*	L	| ((*looking at T*)) |
	297	*		⌊ (1.8) ⌋
→	298	*	L	the homework that David gave you
→	299	*	T	⌈((*v.slight forward head movement, orientated to VOCA*))⌉((*head drops forward*))
	300	*		⌊ (1.3) ⌋
→	301	*	L	⌈ yeh ⌉
	302	*	T	⌊((orientated *to VOCA*))⌋

This extract begins with Lucy asking, "what did you colour in" (line 293). In this instance, at the TRP of the question Tina is orientated to her VOCA and VOCA bleeps are sounding continuously. Lucy's question implicates VOCA use as the modality of the answer, and Tina's orientation to her VOCA at the TRP presents the possibility that she may be engaged in developing a VOCA mediated turn and one that is an answer to the question. After 1.8 seconds Lucy enters the turn initial pause, allocated to Tina by the question, offering a candidate answer, "the homework that David gave you" (line 298). Tina remains orientated to her VOCA and over the next 1.3 seconds makes a slight forward head movement, her head then dropping forward in a more pronounced movement. Lucy treats this as an affirmation of the candidate and makes her treatment public in a third turn, saying, "yeah" (line 301). So, again, the initial question is revisited and a candidate answer proposed. The candidate introduces new possibilities for the talk by implicating a non-speech mediated affirmation or rejection as a minimal and suitable next action. In this instance an emphatic answer in response to Lucy's candidate is not initiated particularly promptly. However, when an emphatic head movement is observed 1.3 seconds later (line 299) Lucy provides a public treatment of this action. Again, then, Lucy appears

to alter the answerability of the question and takes action to alter the content and form a relevant answer might take.

6.3.1 Summary

These examples illustrate a common feature of the talk and one that has also been highlighted in extract 11 above. Having asked a question that requires VOCA use in its answer Lucy reformulates the initial question to provide a candidate answer that may be accepted or rejected non-verbally. In this way Lucy reconfigures the possible temporal progression of the interaction allowing Tina to answer more quickly. This action steers the interaction away from a requirement for VOCA use, avoiding the possibility of additional work required by both girls in the production of a VOCA mediated turn.

The analysis now considers further how the interaction is organised when the VOCA is not used and Tina contributes to the interaction through non-verbal actions and vocalisations. This occupies a substantial proportion of Tina and Lucy's conversation.

6.4 The realisation of sequences of questions and candidate answers that lead to answers communicated non-verbally

A prominent feature of the way in which Tina and Lucy's interaction is organised when the VOCA is not used is the recurring realisation of sequences of adjacency pairs designed to identify a particular target(s) or answer to a question. Invariably Lucy takes the first pair part to ask a question or provide a candidate answer to her own prior question. The analysis will explicate three episodes of interaction that exemplify these practices and in so doing reveal how Tina may use non-verbal resources to achieve actions other than yes and no responses, and how Lucy may selectively treat Tina's actions with rich meaning. Consider the first of these examples illustrated in extract 17 below.

The early elements of this extract (lines 082 to 089) have been outlined earlier in extract 13 (page 158) and the discussion of Tina's initiation of VOCA mediated turns. In that instance they showed how Lucy steered the conversation away from Tina's unilaterally initiated VOCA mediated turn with the introduction of a guessing sequence about Tina's weekend. Here analysis is concerned with examining how that sequence develops.

Extract 17 (T&L: 082 – 129)

→	082	*	L	⌈what did you do over the weekend⌉
	083	*	T	⌊ *((switching))* ⌋
	084	*	T	⌈*((looking at VOCA))* ⌉
	085	*	L	| *((looking at T))* |
	086	*		⌊ (3.0) ⌋
→	087	*	L	⌈shall I um: (1.0) say some words and you stop me⌉
	088	*	T	⌊ *((switching))* ⌋*((nods head))*
	089	*	L	ok
	090	*		(1.5)
→	091	*	L	⌈ um: did ⌉ you do: (0.5)⌈ Colouring ⌉
	092	*		⌊*((looks away))*⌋ ⌊*((looks at T))* ⌋
	093	*	T	*((hits left head switch & nods head dropping forward chin on chest))*
→	094	*	L	did you⌈ er: do: ⌉ ⌈ Go out ⌉
	095	*		⌊*((looks away))*⌋ | *((looks at T & raises arms))* |
	096	*	T	⌊ *((swings head to right, hits right switch))*⌋
	097	*	T	*((small nod forward head back to right switch))*
→	098	*	L	did you go out yeh
	099	*	T	[ʁ]
→	100	*	L	⌈⌈ did you:: ⌉(bleeps stop)⌈ watch telly ⌉⌉
	101			| ⌊*((looks away))*⌋ ⌊*((looks at T & raises eyebrows))* ⌋ |
	102		T	⌊⌊ *((looking at VOCA))* ⌋
	103		T	*((sideways head movement & nod))*
	104		L	yeah
	105			(2.0)
→	106		L	did you:: (1.0)⌈ play a game ⌉
	107			⌊ *((forward head movement))* ⌋
	108		T	*((small forward head movement, activates switch with sideways head movement))*

	109	L	⌈ no ⌉ ((*looks away/ahead*))
	110	T	⌊((*lateral head movement*))⌋
	111	L	⌈ ((*looking ahead*)) ⌉
	112	T	|((*orientated to VOCA*)) |
	113		⌊ (1.7) ⌋
→	114	L	⌈ did you:: ⌉ ⌈ ((*looking ahead*)) ⌉
	115	T	⌊((*orientated to VOCA hitting switches*)) ⌋ |((*orientated to VOCA hitting switches*)) |
	116		⌊ (1.5) ⌋
→	117	L	((*looks at T*)) ⌈did I miss anything out
	118	T	⌊((*activates right switch no bleeps*))
	119	T	⌈((*looking at VOCA, hits head switch no bleeps heard*))⌉
	120	L	| ((*looking at T*)) |
	121		⌊ (1.5) ⌋
→	122	L	⌈ did you do anymore ⌉
	123	T	⌊((*activates right switch no bleeps*)) ⌋ ((*shakes head hits head switch no bleeps*))
	124		(two noises of uncertain origin)
→	125	L	is that the⌈only thing you ⌈did
	126	T	⌊((*head drops forward*)) ⌊((*small head nod*))
	127	T	((*head still down makes small nod*)) =
	128	L	= can I guess what you had for dinner
	129	T	((*head still down smiles and makes small head nod movement*))

This extract begins with Lucy's question, "what did you do over the weekend" (line 082). In the three seconds following this question Tina remains looking at her VOCA (line 084) and Lucy looks at her (line 085). Lucy then speaks again saying, "shall I um: (1.0) say some words and you stop me" (line 087). At the time that Lucy asks the question, Tina is observed to nod her head in answer and Lucy produces third turn response, making explicit her treatment of Tina's head nod by saying, "ok" (line 089). Lucy's actions here are an entry into Tina's turn initial pause and provides for the possibility of altering the trajectory of the talk by proposing a new arrangement for its development. In seeking confirmation that the proposed participation arrangement is an acceptable form of action the initiation of this arrangement is contingent on Tina's agreement, and, as such, this sequential organisation is analogous with that of a pre-sequence (Schegloff, 1990) and Tina's non-verbal action here acts as a "go ahead". Lucy's next action, a third turn receipt, shows her shared and public agreement for the proposed course of action. This action

also acts as a public and collaborative account for not orientating further to the VOCA mediated turn underway and still imminent up until that point. Lucy's use of the term "some words" implies that there is more than one correct weekend event that can be guessed, and the use of "stop me" requires only minimal action by Tina as an acceptable signal that Lucy has identified an activity that matches her weekend.

In this way the girls organise a structured system that appears to provide for the progression of the interaction in which turn order is explicitly established and the relative distribution of turns between the girls, and their roles as participants in the talk, are predetermined. For the duration of the sequence, unlike turn taking between speaking partners in conversation, the subsequent talk will be characterised by explicit and established turn order, turn type and turn distribution.

In organising the interaction through Tina's acceptance or rejection of Lucy's suggestions the interaction shares some features of interaction observed between adults and children using communication aids (Harris, 1982; Light et al., 1985a,b; Udwin & Yule, 1991; Jolleff, et al., 1992; McConachie & Ciccongani, 1995; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999). Adults are reported to use "yes/no questions" with children using communication aids providing "yes" and "no" responses communicated non-verbally. Also interestingly, similar forms of conversational organisation have been observed in conversation between aphasic adults and their speaking partners. In particular, Goodwin's conversation analytic approach to the study of an aphasic adult's request sequences (Goodwin 1995) shows a similar structure to the pattern of turns observed here. The aphasic adult in Goodwin's analysis was only able to speak three words, "yes", "no" and "and". Request sequences were frequently organised through the aphasic adult's initiation of a guessing sequence in which he accepts or rejects proposals as to what he might be trying to say. Goodwin characterises the aphasic participant as the "focal participant" (Goodwin, 1995: 238) of the interaction, and although Lucy does not initiate these types of sequences the pattern of turn exchange follows a similar path. Despite her lack of communication resources she is located as the arbiter of the accuracy of Lucy's candidates so that like the aphasic adult described in Goodwin's study, Tina is the focal participant of the interaction.

The interaction proceeds with Lucy offering the first candidate saying, "um: did you do: (0.5) Colouring" (line 091). Lucy looks away from Tina into the middle distance as she starts her turn, displaying visibly that she is hunting for the specific candidate. The guess is delivered with Lucy shifting orientation towards Tina and looking at her. In addition to this marked shift in physical orientation Lucy adds emphasis to the candidate by initiating it with increased stress and slightly raised volume. It is notable that the VOCA generated scanning bleeps are sounding continuously at this time and Tina is observed to hit her head switch before nodding (line 093). However, Lucy does not orientate the switch activation as a potential VOCA mediated contribution to the conversation but as a non-verbal and non-VOCA answer.

Lucy then proposes a second candidate asking, "did you er: do: Go out" (line 094). Again Lucy directs her gaze away from Tina in the early part of the turn as she searches for a candidate and returns her gaze to Tina as she delivers the candidate. This candidate is marked also with increased stress and volume on the initial element of the candidate "Go" and Lucy raises both her arms at this point heightening the revelation of the candidate. On this occasion Tina makes a small forward head movement and hits her head switch. Again, Lucy does not orientate to the switch activation but demonstrates some sensitivity to these potentially ambiguous head movements within the sequential context that an answer is due and she repeats her candidate saying, "did you go out yeh" (line 098) adding "yeh" as a signal of her orientation to the prior non-verbal action. In this instance Tina generates a short vocalisation (line 099) and this is treated implicitly as an affirmation as Lucy presents a further candidate saying, "did you watch telly" (line 100). During this turn the scanning bleeps stop sounding. This candidate is delivered in the way typical of this sequence with Lucy looking away as she searches for a candidate and then returning her gaze to Tina as she delivers it. Tina then makes a small nod forward and raises her eyebrows. Lucy makes public her treatment of this action saying, "yeh" (line 104). The sequence continues in the same pattern with Lucy proposing a fourth candidate saying, "did you::(1.0) play a game" (line 106). Tina then makes a small forward head movement and activates her head switch with sideways head movement (line 108) and Lucy treats this action as a rejection saying, "no" (line 109) and she looks away.

It is notable that one consequence of the explicitly agreed organisation for this spate of talk is that Tina's affirmations and rejections hold equal status, so that the progression of the interaction is not altered by a yes or no response. While no answers make further guesses relevant, yes answers, signalling correct guesses, are not topicalised, so that for the duration of the sequence there is an expectation that Lucy will produce another guess irrespective of the class of Tina's answers. This differs from Goodwin's observations where "no" answers reinstate the guessing and "yes" answers finish the guessing. The difference here lies principally in the fact that in Tina and Lucy's talk the girls are not attempting to identify a particular target. Conversely, the request sequences analysed by Goodwin are geared specifically to such an outcome. The exchanges examined in extracts 18 and 19 below reflect more closely the interactive significance of yes and no observed by Goodwin.

Lucy designs her questions and candidate answers such that they may be answered with a yes or no response, and as such they may be signalled emphatically, and initiated promptly through non-speech resources. One outcome of this form of turn taking is that the conversation progresses at a pace more akin to conversation between speaking participants. This form of sequence also minimises the possibility of engaging in long and elaborate exchanges aimed at identifying the meaning of VOCA utterances. Any ambiguity in Tina's actions may be understood within the context that an answer is due and a yes or no answer will be sufficient as an answer. Similar observations concerning the pace of the interaction and the fact that yes/no answers are typically signalled unequivocally were made in the analysis of Lucy's reformation of questions (section 6.3, page 178).

Although this form of sequence organisation provides a mechanism for the progression of the talk, the momentum of the sequence is not maintained indefinitely, and Lucy initiates a possible closure of the sequence by asking "did you:: (1.5) did I miss anything out" (lines 114 and 117) . Tina is observed to activate her head switch in overlap with this question but without generating a bleep. Lucy's question is a direct appeal to the relevance of continuing with the sequence. Subsequently, in the location where an answer is due Tina is observed to look at the VOCA and she hits her head switches, but this action does not initiate VOCA generated bleeps (line 119). Lucy does not orientate to the possibilities for the

interaction evoked in Tina's VOCA orientated action but revisits the initial question, this time asking, "did you do anymore" (line 122), signalling also that she does not treat Tina's actions subsequent to the original question as answering the question. Tina is then observed to move her head sideways and activate her switches twice more. Again Lucy does not treat these actions as an answer or VOCA initiation, but revisits the question and the possibility of closing the sequence for a third time saying, "is that the only thing you did" (line 125). So, the possibility for closing the sequence is raised three times in total, each new turn providing the implication for sequence closure, so that any answer to any of the questions will be seen as relevant to the issue of possible sequence closure.

It is notable that in parallel with this turn Tina nods her head forward, her head dropping down so that her chin is on her chest (line 126). As the question reaches its TRP she is observed to retain her head in its forward and down position and nod (line 127). Lucy treats this as an alignment with the proposal to stop the guessing sequence and this is evidenced by her initiating a new guessing sequence by saying "can I guess what you had for dinner" (line 128). It is claimed, frequently, that speaking partners are unresponsive to the potential communicative actions of children using communication aids (Calculator & Dollaghan 1982; Light, 1985a; Basil 1992; Pennington & McConachie, 1999). It would seem that Lucy's pursuit of an unambiguous non-speech response to her questions concerning the closure of the sequence in parallel with Tina's switch operation displays just such possible insensitivity. It is not possible to say for certain whether Tina was trying to initiate a VOCA mediated turn here but the example demonstrates the difficulty in initiating this course of action within a sequence with explicitly agreed predefined roles.

This next extract illustrates a further instance of Lucy's use of candidate guessing and Tina's non-verbal responses in pursuit of specific targets. This extract begins immediately on the tail of the closure of extract 17 discussed above. Indeed, the initial turn of this sequence provides the evidence that the prior has closed. This sequence was also outlined earlier in the discussion of Tina's unilateral initiation of VOCA mediated turns (extract 14, page 163).

Extract 18 (T&L: 128 – 169)

128 L = can I guess what you had for dinner
129 T ((*head still down smiles and makes small head nod movement*))
130 L ⌈ pie ⌉
131 T ⌊((*smiling head is raised slightly and sways left*))⌋
132 T ((*smiling shakes head*))
133 L ⌈ fish ⌉
134 T ⌊((*smiling shaking head*))⌋
135 T ((*shakes head & hits switch double click hears no bleeps*))
136 L meat
137 T ((*head drops forward*))
138 L carrots
139 T ((*looking forward head sways back & forward slightly, turns towards L small nod*))⌈((*nods*))
140 L ⌊ carrots ((*nods towards T*)
141 L ⌈umm:
142 | ((*head turns away from T*))
143 T ⌊((*starts raising head slowly*))
144 L ⌈ ((*looking away from T then turns back to face T*)) ⌉
145 T | ((*raising head slowly*)) |
146 ⌊ (2.0) ⌋
147 L roast potatoes
148 T ((*nods smiles lifts head up turning away from L slightly & hits* switch))
149 L ⌈°umm° ⌉
150 | ((*looks away*)) |
151 T ⌊((*looks at L eyebrows raised*)) ⌋
152 L ((*looks at T*)) ⌈veg
153 T ⌊((*small forward head movement*))
154 T =⌈((*holds head still looking at L eyebrows raises lifts head up very slightly and moved head forward very slightly*)) ⌉
155 L | ((*looking at T*)) |
156 T ⌊ (4.9) ⌋
157 L ((*raises eyebrows*)) °(unintelligible) °
158 T ((*small sideways head movement*))
159 L ya ↑just said you had (0.5) err carro(h)ts: ((*raises shoulders smiles*))
160 T ((*head drops forward chin ending on chest*))
161 (2.0)

162	L	↑yeh
163	T	((*head down small nod*))
164		(0.9)
165	L	um:
166	T	⌈((*raises head up to between head switches*))⌉
167		⌊ (2.8) ⌋
168	L	⌈ was ⌉ you ⌈ bored ⌉ at home or was you:
169	T	⌊((*hits switch no bleep*))⌋ ⌊((*hits switch no bleep*))⌋

Lucy begins this sequence by asking, "can I guess what you had for dinner" (line 128). This question goes about proposing a scheme for the organisation of the subsequent interaction in a similar way to the initiation of extract 17 above, "shall I umm (1.0) say some words and you stop me" (line 087). Lucy seeks confirmation that a newly proposed arrangement for the participation is acceptable, so that initiation of the guessing actually concerned with what Tina ate for dinner is contingent on Tina's agreement. Acceptance of this proposal invokes a predetermined procedure of turn exchange and conversational topic. In addition, participants' roles in interaction are hereafter unambiguous. Lucy will offer a range of items from a specific superordinate category that Tina will accept or reject in the next turn. So, the turn sequence is developed in a candidate answer acceptance/ rejection procedure organised over adjacency pairs. It is worth noting here that Lucy does not specify which dinner she means and this is a potential source of ambiguity for the collaborative realisation of the sequence. However, Tina does not appear to seek clarification of this issue, a task that would very likely incur additional work for both girls. That is, the arrangement can, and does, proceed without the girls having explicit knowledge of which particular weekend dinner she is asking about.

So the sequence progresses as Lucy searches for alternatives within the semantic category of potential items that are likely to be included on Tina's dinner plate. Lucy starts with the single word "pie" (line 130), to which Tina shakes her head (line 132), then "fish" (line 133), which is also denied with a head shake (line 135), and then "meat" (line 136), which is accepted with a head nod (line 137). It is possible that a further search for the specific class of meat is relevant here, but Tina's acceptance closes this category as evidenced by Lucy's next candidate, "carrots" (line 138). It is

possible that Lucy reads some ambiguity into Tina's non-verbal actions following this candidate and Lucy repeats the candidate with a nod (line 140) as Tina herself produces an emphatic nodding action (line 139).

This sequence of turn exchanges differs from extract 17 above in that the status of Tina's answers alters the trajectory of the guessing. Tina's affirmation of a candidate does the job of narrowing or even closing the category of foodstuffs from which Lucy is offering alternatives, while a rejection response continues the guessing within that category. Further affirmations of candidates continue to narrow the options available. Lucy then goes about organising her guessing by identifying items in each subcategory of foodstuff that may constitute a meal. In this way the category acts as a resource around which the interaction is organised (Goodwin, 1995).

Lucy then offers a further candidate, entering the turn space with "umm:" (line 141), then turning away and then after 2.0 seconds returning with the candidate, "roast potatoes" (line 147); Tina nods and smiles in answer (line 148). An almost identical pattern of events unfolds as Lucy generates a further candidate, saying, "°umm°" (line 149); turning away from Tina as she searches for the candidate and then looking back at her to provide the candidate, on this occasion saying, "veg" (line 152). In parallel with this candidate Tina produces a small forward head movement. Now at the TRP of Lucy's candidate turn, "veg" (line 152), Tina is looking at her and she holds her head still, then raises it very slightly and moves it forward only very slightly. The predominant action here and one that is notably different from prior actions in the answer slot, is that she holds her head almost perfectly still with eyebrows raised looking at Lucy. Lucy appears to treat Tina's actions as relevant to the candidate "veg" as problematic in some way. Indeed, it is possible that the term "veg" introduces an ambiguity to the sequence as this may be considered a superordinate category from which two items have been identified already, that is, carrots and roast potatoes. The next spoken event is unintelligible but it appears that in whispering to Tina (line 157) Lucy displays some evidence of orientating to the video camera as an overhearing audience. She appears to mask the content of the talk from the video camera, in this way displaying her orientation to the public competence of the conversation. Following this unintelligible whispered turn Tina is seen to produce a small sideways head movement (line 158) and then Lucy speaks

audibly again saying, "you ↑just said you had (0.5) err carro(h)ts:", and she raises her shoulders and smiles (line 159). The laugh tokens embedded within the word carrots and raised shoulders combine to convey the sense that Lucy is downplaying the gravity of the accusation (Glenn, 2003). Nevertheless, in making a gentle criticism Lucy reveals that she is evaluating the legitimacy of Tina's answers and that on this occasion Tina's actions are in conflict with Lucy's expectations.

Goodwin's analysis of interaction involving an aphasic man has shown how this participant may "texture" his use of single word responses by producing them with marked variations in pitch movement and body movement to project alternative ways in which the guessing sequence might develop (Goodwin, 1995). Tina's action in holding her head still and looking at Lucy with eyebrows raised reflects similar textured physical action. Tina demonstrates an ability to adjust her non-verbal actions to signal possible alternatives to a simple "yes" or "no" response and Lucy shows sensitivity to these actions. Again, where research in the aided communication field has identified this type of adjacency pair the participant using a communication aid is characterised as taking a "passive" role and the speaking partner is described as "dominant". Although it is evident that Lucy initiates these sequences of turn taking and proposes candidates to which Tina responds, close examination of the interaction on a turn-by-turn basis reveals that Tina is not simply a passive participant in the interaction but takes action to suggest alternative answers for "yes" or "no".

Following Lucy's turn, "you ↑just said you had (0.5) err carro(h)ts:" (line 159), Tina's emphatic head nod leaves her chin resting on her chest (line 160). A lapse of 2.0 seconds emerges before Lucy speaks again saying, "↑yeah" (line 162). This turn is delivered with rising intonation (mid-high) and as such appears to invite Tina's further affirmation of Lucy's version of events, a version that locates Tina as the party having transgressed. At this point Tina's head is down and forward still and she is observed to produce a small nod (line 163). Lucy does not receipt this action and this sequence is bought to an end when Lucy shifts the focus of the guessing from meal items to different issues concerned with the weekend, asking "was you bored at home or was you (1.0) did you wanna come back to school (line 168).

The final example in this section presented in extract 19 provides a further illustration of Lucy's organisation of the structure of the interaction through the recurring use of questions and candidate answers which Tina accepts or rejects. However, this sequence differs from those illustrated in extracts 17 and 18. In this example, the structure of the sequence breaks from a fairly familiar question/candidate answer - response exchange, and one in which Tina may engage in parallel VOCA orientated activity, to one in which the girls display shared humour and something of the intimacy of their relationship as peers. Lucy is seen to credit Tina with a certain degree of admiration and competence in her ability to carry out a particular weekend activity. Interestingly, the source of the humour and displays of intimacy are built on Lucy's sensitivity to Tina's smile. Consider extract 19 below.

Extract 19 (T&L: 371 – 450)

371 * L ⌈ what did you ⌈do ⌉on Sunday ⌉
372 * | ⌊ * ⌋ |
373 * T ⌊ ((*orientated to VOCA*)) ⌋
374 * T ⌈((*orientated to VOCA hits heat switch*)) ⌉ * =
375 * L | ((*looking at T*)) |
376 * ⌊ (1.8) ⌋
377 * L = did you go and see your sister
378 * T ((*looking at VOCA hits head switch then shakes head*))
379 * L ⌈ no: she ⌉ ⌈ came ⌈to see you
380 * T ⌊ ((*orientated to VOCA*)) ⌋ ⌊* ⌊ ((*orientated to VOCA*))
381 * T ((*orientated to VOCA hits switch with lateral movement/head shake*))* *
382 L no: ⌈ ((*looks away*)) °um: ° ⌉
383 T | ((*bleeps stop orientated to VOCA*) |
384 ⌊ (1.1) ⌋
385 L ⌈ you didn't (.) go to see anyone ⌉
386 T ⌊((*orientated to VOCA tilts head up and sideways slightly and opens mouth*)) ⌋ ((*orientated to VOCA shakes head*))
387 * T ((*activates switches*)) ⌈*
389 * L ⌊ stayed indoors,
390 * T ((*nods head falling forward*))
391 * L ⌈was you in your chair ⌉
392 * T ⌊ ((*orientated to VOCA*)) ⌋((*shakes head hitting head switch*))

393 * L ⌈ you were in: bed ⌉

394 * T ⌊((*orientated to VOCA*))⌋ ((*shakes head*))

395 * L ⌈no on the settee ⌉

396 * T ⌊ ((*orientated to VOCA*))⌋ ((*nods head drops forward and stays down*))

397 * L ⌈in your little armchair ⌉

398 * T ⌊ ((*orientated to VOCA*)) ⌋ ⌈((*head forward and down turns right towards L and nods*)) ⌉

399 * ⌊ (1.6) ⌋

→ 400 * L ⌈ um ⌉ ⌈ watching ⌉ ⌈ telly ⌉

401 * T ⌊((*raises head up swiftly*))⌋ ⌊((*hits head switch*))⌋ ⌊((*holds head still*)) ⌋

402 * T ((*head nods forward and back*))

→ 403 * L >were ya<

404 * T ((*larger forward and back head movement*))

405 * L yep

→ 406 * T ⌈((*head turning looks at L, raises eyebrows, orientates towards VOCA, eyebrows drop starts to smile*)) ⌉

407 * L | ((*looking at T*)) |

408 * ⌊ (3.1) ⌋

→ 409 * T ⌈°having a right good scam° ⌉

410 * L ⌊ ((*smiling*)) ⌋

→ 411 * T ⌈((*smiling perhaps looking at VOCA*)) ⌉

412 * L | ((*looking at T*)) |

413 * ⌊ (1.1) ⌋

→ 414 * L ⌈ watch ⌉ ⌈ television all d(h)ay(.)h ⌉

415 * T ⌊ ((*smile drops*)) ⌋ ⌊ ((*slight smile looking at VOCA*)) ⌋

416 * T ((= *starts to smile, head nods forward slightly smiling*)) ⌈((*smiling*))

417 * L ⌊ were ya =

418 * T ⌈[ʁ]

419 * ⌊((*smiling*))

→ 420 T ⌈((*smiling head nods forward then head lifted up to headrest*))

421 ⌊((*bleeps stop*))

422 T ⌈[ʁ:]

423 ⌊((*smiling head nods forward and back slightly*))

424 L ⌈ I bet you was ⌉

425 T ⌊ ((*broad smile*)) ⌋ ((*continues smiling broadly*))

426 (0.8)

427 L was ya

428 T ((*head drops forward chin on chest*))

429 (0.5)

430		T	°mm°
431			(1.3)
432		T	⌈[də:]
433			⌊((*raising head*))
434			(2.2)
435		T	[o⌈ u:]
436		L	⌊show me how you did it
437		T	↑[ɲaʊ:] !
438			(0.48)
439		L	yeh you did it
440			(0.5)
441		L	like that
442		T	[aʊ:] !
443			(1.9)
444		T	[ə:]
445			(1.0)
446		T	((*smiles looking at L*))
→ 447		L	°lucky bugger ° hfh ((*smiles shrugs and look away*))
448		L	un what else did you do:
449			(0.3)
450		L	what did you do on Friday 'cause I wern't here on Friday

At the start of this extract ongoing VOCA scanning bleeps can be heard. Lucy initiates the sequence with a question, "what did you do on Sunday" (line 371), that requires a VOCA mediated answer. Within the answer slot made relevant by this question Tina is observed to be looking at the VOCA. Slowly she raises her head to approach a position between the switches. A scanning bleep is heard and she hits a head switch. In this action it is possible that she is orientating to the production of a VOCA mediated answer and that this action represents a pre-beginning stage of her turn. However, after 1.8 seconds Lucy reformulates the question, offering a candidate answer, saying, "did you go and see your sister" (line 377). This is a further example of the reformation of a question that originally implicates VOCA use into one that may be answered non-verbally. At this point Tina is looking at her VOCA. She hits her head switch and then shakes her head (line 378). These actions are treated as an answer to the question and Lucy provides a receipt and immediately poses an alternative candidate saying, "no: she came to see you" (line 379).

Lucy remains orientated to her VOCA and generates a further two bleeps through activating her head switches (line 381). It appears that it is her sideways head movements used in switch activation that are treated publicly as an answer to the question, with Lucy saying, "no" (line 382) and looking away from Tina. Lucy then speaks again quietly saying, "°um: °" (line 382). The utterance "°um: °" serves to claim next speakership, signalling a turn in progress and the likely continuation of the guessing sequence.

It is at this point that the VOCA generated bleeps fall silent, and after 1.2 seconds Lucy proposes a further candidate that acts to test the relevance of further guessing within the current theme, saying, "you didn't (.) go to see anyone" (line 385). Tina is still looking at her VOCA and she tilts her head upwards and sideways and opens her mouth slightly. Then she shakes her head and activates her head switch generating a bleep (lines 386 and 387). This action initiates the VOCA's scanning procedure and consequently VOCA bleeps continue sounding for the remainder of this exchange and beyond. At the moment the first bleep is heard Lucy provides a further candidate, implicitly treating Tina's prior actions as a rejection of the prior candidate, saying, "stayed indoors" (line 389). The possibility that Tina may be generating a VOCA mediated turn through activation of her head switches is not orientated to by Lucy as a possibility for the interaction. Tina generates an emphatic nod, her head falling forwards (line 390). The sequence now shifts focus and progresses through Lucy's continued production of candidates concerned with Tina's home-based activity. Lucy asks, "was you in your chair" (line 391), to which Tina shakes her head, simultaneously hitting her head switch (line 392). Lucy then offers an alternative from the same category of guesses by asking, "you were in bed" (line 393), which Tina rejects with a head shake. Again, Lucy pursues this theme proposing, "no on the settee" (line 395), following which Tina's head falls forward. Lucy provides a further guess without displaying how she treats the prior non-speech action saying, "in your little armchair" (line 397). With her head down and forward Tina orientates towards Lucy and nods her head. Lucy implicitly treats this as an affirmation and shifts the focus of her guessing again to explore what she might have been doing in her armchair saying, "um watching telly" (line 400). Tina nods (line

402) and Lucy recycles this confirmation saying, "were ya" (line 403). So far then, in an attempt to answer her initial question, "what did you do on Sunday" (line 371), Lucy has provided a number of guesses/candidate answers to which Tina has responded with a "yes" or "no" communicated non-verbally.

The turn "were ya" (line 403) has a number of functions. As a question it is a first pair part of an adjacency pair and thus implicates Tina as the next speaker in the generation of an answer. It is also hearable as re-evoking the question "um watching telly" (line 400) by its sequential placement to it. It may also be heard as displaying availability to talk further on this issue. In this way Lucy's actions hold the progression of the topic at this point, focusing the talk on this aspect of Tina's weekend. Tina then generates a forward and back head movement (line 404) and Lucy provides a public receipt of Tina's actions saying, "yep" (line 405).

The momentum of the turn exchange appears to slow as Lucy does not speak immediately again. At this point Tina's head is extended downwards and forward and tilted to her right towards Lucy. Over the next 3.1 seconds Tina is observed to bring her head towards the midline, and as she does so she makes brief eye contact with Lucy. As she breaks eye contact Lucy is still looking at Tina when Tina then raises her eyebrows and starts to smile (line 406). At the moment just following Tina's initiation of a smile Lucy speaks again quietly saying, "°having a right good scam°" (line 409). The initiation of Lucy's turn just after the girls make eye contact and Tina begins to smile suggests the possibility that Lucy's turn, describing the "scam", is a response to, and built on, Tina's non-verbal actions here.

Interestingly, this turn introduces the notion that Tina has pulled off an enviable feat in watching television. In this way Lucy reveals and establishes their relationship as young people with shared desires that may run contrary to those of their parent(s)/carer(s). It also conveys a degree of competence on Tina, portraying her as an autonomous and skilled individual in carrying out this "scam" successfully. During Lucy's turn here and in the location following this turn, Tina is observed to be sitting upright and smiling broadly. Next, Lucy recycles the source of the "scam", refocusing the interaction on its humour and making explicit her treatment

of Tina's smile saying, "watching television all d(°h)ay (.)°h" (line 414). In adding "all day" she displays how Tina's television watching is a "scam" rather than part of normal weekend activity. At the TRP of this turn, Tina's smile widens and her head moves forward, displaying appreciation of Lucy's actions.

Then for a third time Lucy recycles the humour and the focus of the talk on the competence of Tina's achievement saying, "were ya" (line 417). Subsequently, Tina vocalises "[ʁ]" (line 418) followed by a head nod and then a second vocalisation "[ʁ:]" (line 422). In general Tina vocalises infrequently, and in this instance it is not certain how these vocalisations relate to the prior talk or what it may implicate for the subsequent talk. Primarily, this is an issue for Lucy and immediately following the second vocalisation Lucy says, "I bet you was" (line 424). This turn works in a similar way to her use of "were ya" (line 417) in that it recycles, for a fourth time, the issue of Tina's enviable television watching as the central theme of the talk. It also displays her orientation to Tina's prior vocalisations as generally affiliative with the development of the talk without unpicking their specific meaning.

Furthermore, in saying: "I bet you was" (line 424), Lucy projects Tina as someone to whom a certain admiration and respect is due, again conveying a degree of competence on her. Lucy then recycles this issue yet again, this time saying, "was ya" (line 427). So, for a fifth time she directs the interaction back into the humour of the current talk and a re-evocation of Tina's competence. Tina answers emphatically with her head dropping forward in a vigorous nod, her chin coming to rest on her chest (line 428).

Over the subsequent 4.0 seconds Tina is heard to vocalise quietly producing "°mm°" (line 430) and 1.3 seconds later she begins to raise her head up and produce a second vocalisation, "[də:]" (line 432), followed 2.2 seconds later by a third vocalisation "[ou:]" (line 435). In overlap with this vocalisation Lucy speaks again saying, "show me how you did it" (line 436). It is not clear how this question relates to the prior exchange or vocalisations but in asking Tina to "show" her how she achieved some activity she provides for a next turn that may be conducted non-verbally. Subsequently, Tina is heard to produce a loud and exaggerated vocalisation

"↑[ɲauː]!"(line 437). Interestingly, Lucy builds her next turn on this action treating it as an answer to her question despite its unintelligibility by saying, "yeh you did it (0.5) like that" (lines 439 and 441). Tina then provides a further exaggerated vocalisation "[auː]!" (line 442) and 1.9 seconds later a shorter one, "[əː]" (line 444) and looks at Lucy and smiles.

Lucy then comments on Tina's television watching for the last time, saying, "°lucky bugger° hfh"(line 447) smiling and withdrawing her gaze. The introduction of rudeness or obscenity into conversation may display that a participant is orientating to the interaction as an intimate and informal one (Jefferson et al., 1987). It is just this type of relationship that Lucy's use of the term "lucky bugger° hfh" is signalling here. In generating laughter, "hfh" at the end of the utterance, Lucy demonstrates also that the obscenity is intended as light hearted, and Lucy's use of this utterance again evokes competence in her co-participant. She then closes this particular exchange, opening a new theme by asking, "un what else did you do: (0.3) what did you do on Friday 'cause I weren't here on Friday" (lines 448 and 450).

Lucy displays sensitivity and responsiveness to a moment of shared eye contact and Tina's initiation of a smile to bring about an episode of interaction in which Lucy generates humour and intimacy, portraying Tina as a competent and skilled individual. In this way Lucy displays and maintains their relationship as intimate peers through an orientation to mutual aspects of enjoyment such as watching television all day.

6.4.1 Summary

The conversation between Tina and Lucy commonly proceeds through the recurring use of questions or candidate answers in the pursuit of targets. Lucy initiates this form of conversational organisation. A characteristic of two of these routines is that entry into them is explicitly negotiated. That is, in contrast to the implicit management of turn taking in naturally spoken interaction, the question of how turns at talk are to be distributed across speakers becomes a matter for explicit negotiation.

So, for example, Lucy asks, "shall I say some words and you stop me" (extract 17 line 087, page 183) and "can I guess what you had for dinner" (extract 18, line 128, page 189).

Lucy's questions and candidates implicate minimal lexical and grammatical content as acceptable answers. Such answers may be delivered through non-speech channels, and, consequently, Tina's turns are short, unambiguously complete, and initiated promptly with a minimisation of inter-turn gaps. In this way the girls organise a structural system that appears to provide for the progression of the interaction in which turn order is explicitly established and predictable, and the relative distribution of turns between the girls, and their roles as participants in the talk, are to some extent predetermined.

There are consequences of this way of managing turn taking which have implications for the structure of the talk. Within one of these exchanges Tina's non-verbal actions are treated as relevant to the prior question or candidate and to the participants' arrangement for the sequence as a whole. Therefore, Tina may have difficulties taking an extended turn because any action she takes is treated as a response to the question. For example, a notable feature of these exchanges is that Tina frequently engages in VOCA oriented activity in parallel with Lucy's turns at asking questions and in the answer slot following a question or candidate answer. Similar observations have been made in the analysis of Jamal and Colin's conversation (for example, extract 1, line 029, page 80). Despite the fact that Lucy can see such actions taking place within these exchanges she does not orientate to them as indicative of possible VOCA use.

In addition, Lucy's active orientation to the use of judiciously designed questions supports the integration of potentially ambiguous non-speech actions, in the second turn, as relevant and meaningful collaborative actions in the development of the conversation. Significantly, also Tina may "texture" her non-speech actions to introduce new possibilities for the interaction and Lucy may selectively treat these actions as meaningful in different ways. For example, in extract 18 Tina's eye-gaze and a lack of physical movement following a candidate were treated as signalling some type of problem. In the final example the girls share eye-gaze and the initiation

of a smile from Tina precipitates an exchange in which the girls display humour and intimacy not seen previously in the conversation. Lucy is also seen to evoke Tina with a certain degree of competence.

6.5 Summary of analysis

The central aim of this analysis is concerned with capturing the particular and unique way in which the girls' conversation is organised. The first two sections of the analysis have considered aspects of conversational organisation that involve VOCA use and the latter two sections have been concerned with conversational practices where the VOCA is not used and where Tina contributes to the conversation through non-verbal actions.

Although a relatively limited feature of the talk, it is apparent that Lucy may organise VOCA use by asking questions that specifically require VOCA mediated answers. For Tina and Lucy this practice organises VOCA use with an explicitly defined function, that is, an answer, and in the two examples identified in the conversation the form of the answer is projected also, that is, as list of colours (extract 10), and the name of a member of school staff who takes the girls swimming (extract 11). So, like Colin, Lucy as the speaking participant, may structure VOCA use within the conversation.

It is apparent that Tina's VOCA mediated turns are characterised by very significant pauses between consecutive elements. For example, extract 10 illustrates how pauses of 26.8, 24.5, 32.2 and 76.5 seconds were evident between single word utterances. It is evident also, that like the conversation between Jamal and Colin, the speaking participant may orientate to these pauses as an opportunity to enter the turn in progress. When Lucy does this she most typically provides a receipt of the latest VOCA mediated element and/or combined elements so far.

Outside the sequential position that is an answer to a question, there are limited opportunities for Tina to unilaterally initiate a VOCA mediated turn, but she is

observed to do so within lapses in the turn taking. The initiation of VOCA mediated utterances takes a common pattern of turn exchange whereby Lucy will orientate to the possibility that Tina is initiating a VOCA mediated turn and, through the use of a meta-interactional question, seek publicly to confirm this possibility for the talk. Tina invariably responds to this action non-verbally with a head movement and Lucy then provides a public receipt of her treatment of this action. Subsequently, a significant turn initial pause develops within which Tina is engaged in pre-beginning aspects of her VOCA turn.

It is notable that although unilaterally initiated VOCA mediated turns may pass off without difficulty, on other occasions problems may be encountered. For example, it is notable that, in one instance, despite the explicitly agreed expectation for a VOCA utterance coming next, Lucy takes action to guide the interaction away from its realisation (extract 13). When unilaterally initiated turns pass off without difficulty Lucy makes sense of the VOCA utterance by reference to the immediately prior exchange of turns. Here, sequentiality provides a resource for sense making. However, sequentiality may also provide a source of problems for the girls in making sense of VOCA use, and Lucy experiences difficulty in understanding the relationship between elements of Tina's turn and the type of interactional function of Tina's turn (extract 14).

For a significant part of the conversation Tina's VOCA is not used. Analysis has shown how Lucy may ask questions that require VOCA use but subsequently are reformulated with a candidate answer, making a non-verbal next turn a suitable next event. In these instances, Lucy alters the answerability of the original question and takes action to steer the interaction away from the requirement of VOCA use.

Finally, Lucy is seen to organise extended sequences of adjacency pairs where she produces the first pair part as a question or candidate answer and Tina takes the second turn providing a non-verbal acceptance or rejection of the first pair part. These sequences are explicitly established and the distribution of turns, and the girls' roles in the talk are, to a degree, predetermined. Interestingly, within such a sequence Tina is observed to signal intentions beyond yes or no response non-verbally. Equally, Lucy may build the interaction around Tina's physical actions treating them

with rich meaning and conveying a sense of competence onto Tina and the conversation. Lucy plays a central role in developing the conversation through sequences of turns in which Tina may contribute through non-verbal resources, and this form of interaction demonstrates a delicate interplay between Lucy's actions in organising this aspect of the interaction and Tina's non-verbal contribution to the talk.

Chapter 7

7.0 Analysis and Findings: Martin and David

Analysis of the conversation between Martin and David reveals some interesting similarities and differences with the organisational practices observed in the conversations between Jamal and Colin, and Tina and Lucy. The analysis presented in this chapter is again motivated by the primary research questions examined in this thesis, in particular: what is the role of the speaking participant, in this case David, in organising the interaction, what contribution does the VOCA make, and how does the conversation proceed when the VOCA is not used?

Analysis of the conversation between Jamal and Colin, and Tina and Lucy, has revealed overwhelmingly that the participants organise sequences of turns through adjacency pairs realised as questions and answers. For Jamal and Colin this involves taking turns to ask each other questions, which typically are test questions. For Tina and Lucy this is most commonly realised in Lucy's use of questions and candidate answers designed such that a minimal, acceptable next answer is one that affirms or rejects the question, and is an action that may be conducted through non-verbal means. It is apparent here that although Martin and David do organise the interaction through the realisation of questions and answers, this is a less frequently observed feature of the talk and they employ a range of other methods of constructing conversation.

First, the analysis will examine how VOCA use is initiated and how it is used. Martin uses his VOCA infrequently and like the conversation between Jamal and Colin, VOCA use in this conversation is regularly preceded by meta-interactional turns that make explicit the expectation that VOCA use will come next. As observed in both prior conversations VOCA mediated utterances are characterised by significant turn initial pauses in which Martin engages in pre-beginning aspects of VOCA use. Notably, Martin's VOCA use is qualitatively different from that observed in the previous two dyads. Martin deliberately produces minimal VOCA

mediated turns, often in the production of rude talk and humour. Most commonly, he contributes to the conversation through vocalisation and non-verbal actions. The latter part of this analysis considers how Martin may carefully place the initiation of such actions to show appreciation of the ongoing talk; how David may choose to ignore the possible relevance of such actions and how David may orientate to them as a resource for the conversation by treating them with rich meaning and in particular rather humorous and risqué innuendo.

7.1 The realisation of VOCA mediated utterances

It is apparent that Martin uses his VOCA infrequently in this conversation. Indeed, he is observed to use it on only four occasions. It is notable also that Martin's VOCA use comes about invariably following David's prior use of a meta-interactional turn. Each instance of VOCA use is characterised by the realisation of a turn initial pause in which Martin engages in pre-beginning elements of the turn. It is evident also that Martin generates minimal VOCA mediated utterances, at most consisting of two words and, in their most minimal form, a single letter. Where Martin does use more than one element David orientates to the within turn pauses as an opportunity to enter the turn. Most notably, Martin uses limited or incomplete VOCA utterances and he does so deliberately to generate significant humour and risqué talk, and on one occasion an expletive. In this way Martin's VOCA mediated contributions demonstrate skilled adaptations to the limitations of VOCA use. This section of analysis will examine each of the four episodes of VOCA use.

Extract 20 below illustrates the very first instance of VOCA use that takes place right at the start of the conversation. This example illustrates each of the main characteristics of VOCA use seen in each episode of its use. In addition, it is notable that Martin uses carefully timed initiation of vocalisation and non-verbal action to expand on the minimal VOCA utterance.

Extract 20 (M&D: 007 – 037)

	007	B	⌈hi Mark ⌉
	008		⌊voice heard addressing adult outside the room ⌋
	009	D	⌈oo⌈oohhh ⌉
	010		⌊((*t | urns to M smiles*))⌋ ((*l o o k I n g a t M*))
	011	M	| [æ:hhæ:] ⌉
	012		⌊((*smiling looking at D*)) ⌋ ((*looks down*))
→	013	D	⌈go on you start ⌉
	014		⌊((*looking at M hand, small right hand point to VOCA occurring at waist level & arm not extended*))⌋
→	015	M	⌈ ((*looks at D*))⌉ [eə:]↓[æ:h]
	016		⌊ (0.52) ⌋
→	017	D	⌈you °start°
	018		⌊((*lifts hand next to M's face*))
→	019	M	⌈[ej]↑[æ:] ⌉
	020	M	⌊((*hand moves to M's face directing gaze to VOCA*)) ⌋ ((*hand stays on M's face moving head into midline*))
	021	M	⌈((*turns to look at VOCA*)) ⌉
	022	D	⌊((*hand comes away from M's face*))⌋
→	023	D	°go on°
→	024	M	⌈((*orientates to VOCA& starts switching*)) ⌉ * ⌈((*switching*))⌉ * ⌈((*switching*))⌉
	025		⌊ (6.5) ⌋ ⌊ (5.9) ⌋ ⌊ (9.7) ⌋
→	026	M	* ⌈((*turns and looks at David*))⌉ ***D*** ⌈***a p h n e*** =
→	027		⌊ (0.3) ⌋ ⌊((*starts to smile*))
	028	D	= ((*looks at M*)) =
	029	M	=((*raises out of seat looks up raising eye brows*))=
→	030	M	= [eə:⌈æhh ⌉ ⌈eɪjə: :] ⌉
→	031	D	|yeh: Martin | |I know |
	032		⌊((*looks down*))⌋ ⌊((*looks back to M*))⌋
	033	M	⌈((*returns to seated position looking at D*))⌉
	034		⌊ (1.1) ⌋
	035	D	oi Martin b⌈u
	036	M	⌊[jɑ:h:]
	037	D	can I tell you something

This extract is taken from the very start of the conversation when the boys are on their own for the first time after the adult has left the room. David addresses Martin saying, "go on you start" (line 013). In a similar way to Colin's question to Jamal at the start of their conversation, "what do you wanna talk about Jam" (line 012), David provides an opportunity for Martin to nominate officially the theme of the peer talk. Also, David's turn is a meta-interactional command, bringing the organisation of the talk to the surface of the talk itself. This action makes explicit the fact that it is Martin's turn to talk next and implies that any relevant next turn will necessarily be conducted through the VOCA. It is notable that speaking partners' use of meta-interactional turns are evident in each of the other conversations. Interestingly, then, it is David who instigates the introduction of the VOCA into the conversation, and he does so in a way that projects the possibility of the VOCA introducing first topical material with which the conversation might develop.

Following this command Martin looks at David and produces a vocalisation with marked falling pitch "[eə:]↓[æ:h]" (line 015). In doing this Martin also displays a preference for contributing to the interaction through vocalisation and non-verbal action. David does not treat this vocalisation as relevant to the talk here but reiterates the command, this time in a slightly truncated form, saying, "you °start°" (line 017), with the second element of the utterance "start" fading in volume as David moves his hand to Martin's face, guiding his head towards a midline posture. In this way he physically orientates Martin towards the VOCA with Martin's head coming within the two head switches. In these actions David displays an awareness of the requirements for Martin's postural alignment in VOCA use, and reinforces his expectation for a VOCA mediated turn next. Martin's next action is to produce a second vocalisation this time with marked rising pitch "[ej]↑[æ:]" (line 019) as he takes volitional control of his head movement towards the midline and David's hand moves away from his face. Then, for the third time, David restates his expectation that Martin might use his VOCA next by saying quietly, "°go on°" (line 023). Martin fully orientates to his VOCA and begins working with his device through his head switches. Thus David is seen to pursue VOCA use, rejecting the interactive relevance of Martin's vocalisation, "[eə:]↓[æ:h]" (line 015), as a suitable response to the request to "start".

In operating his VOCA through a manual switch access procedure Martin has volitional control over when and how VOCA generated bleeps are realised. Consequently, the VOCA bleeps in this interaction have a similar status to those generated by Jamal in that each bleep is usually indicative of Martin's active VOCA operation. It was noted that VOCA bleeps heard in Tina and Lucy's conversation may indicate active VOCA use but the ongoing scanning bleeps may equally be sounding when Tina is not operating her VOCA.

So, 6.5 seconds after David's last command, "°go on°" (line 023), the first VOCA mediated bleep is heard. Then two more are heard separated by pauses of 5.9 and 9.7 seconds respectively (line 024), and immediately following the third bleep the single word "***Daphne***" (line 026) is produced. Daphne is a Learning Support Assistant (LSA) in school. During this time David removes his gaze from Martin and waits in silence. Like the VOCA mediated turns produced by Jamal and Tina, Martin's turn is characterised by an extended period of turn development before the first element of the turn is heard during which time pre-beginning elements of the turn are evident.

Interestingly, in the moment before the VOCA mediated word is spoken Martin turns from the VOCA and looks at David, and starts to smile, evoking humour as an aspect of the events in progress (line 026), that is, using non-verbal actions to signal paralinguistic aspects of this utterance. Consequently, Martin's gaze is directed to David when the VOCA speech is generated so that Martin's spoken utterance and his gaze orientation are complementary. As David turns to Martin in recipiency of the VOCA utterance (line 028) the boys make eye contact, and at that moment Martin rises up in his seat, looks upwards and raises his eyebrows (line 029). Then, holding this position at the peak of physical vertical extension he produces a vocalisation: "[eə: æhh eɪjə: :]" (line 030) and looks at David smiling.

It is notable that when David speaks again saying, "yeh: Martin I know" (line 031), he does so at the point at which Martin reaches the zenith of his upward movement and when he is still vocalising fully. There is no discernable pause in the stream of vocalisation that may account for David's initiation here so he appears to align

himself with the range in height of Martin's whole body movement as signalling a possible TRP rather than features of the stream of vocalisation. The vocalisation and physical actions then come to an end as Martin comes back to the seated position and looks at David. The placement of David's turn here signals that he is treating the relationship between the VOCA and non-verbal actions as elements that form part of a coherent sequence, that is, receipting the VOCA mediated element of the turn and the embodied actions in combination.

Also, in designing his turn as "yeh: Martin I know" (line 031), David produces a receipt of these actions and treats them as signalling something greater than the simple mention of Daphne by providing an explicit reference to a state of shared understanding but without making public its precise nature. The implied meaning in the use of "I know" also conveys a sense that Martin's actions are intended to signal some rather risqué comment on or stance towards Daphne. It is possible also that in responding in this way David demonstrates some awareness of the video camera as an overhearing audience. David then goes on to develop the conversation saying "oi Martin bu can I tell you something" (lines 035 and 037).

These actions signal Martin's heightened opinion of, and attitude towards, Daphne. In this way Martin uses non-verbal actions and vocalisation to embellish the VOCA mediated utterance "***Daphne***", conveying how he wishes it to be heard and something of the communicative intent of this single word. Furthermore, at the moment that he secures David's gaze Martin is able to initiate a physical action, in concert with unintelligible vocalisation in a way that signals that they are latched to the VOCA utterance. In this way Martin initiates humour in the conversation right from the start, and he achieves this, in part, through minimising the VOCA mediated element of the utterance and combining this with excited and exaggerated vocalisation and non-verbal action. The precise nature of the humour is implied, so that it works on the basis that the listener reads into the VOCA mediated utterance and non-verbal action something of his or her own rude or risqué interpretation of the actions. The humour initiated here by Martin in the first topic of the conversation becomes a recurrent feature of the talk in general and in particular his VOCA mediated contributions to the talk.

Martin's combined use of a VOCA mediated utterance, non-verbal actions and vocalisation is analogous with features of interaction described as topic-comment structures. The realisation and definition of topic-comment has been a source of some discussion (Bates & MacWhinney, 1979; Atkinson, 1979). Although the issue here is not one of applying Martin's actions to categories of behaviour observed in normal language use, it is notable that Martin highlights the reference first and subsequently performs some treatment on it through non-verbal action and vocalisation, displaying how the reference might be heard. It is apparent that Martin demonstrates what Light (1989) might call "strategic competence" in developing his turn beyond the limitations of a single VOCA mediated word. That is, not just showing that he wishes to talk about Daphne but how the conversation might develop in respect to her.

Although essentially different in their nature Martin's actions do echo descriptions of children's use of communication aids in conversation with adults. For example, children using communication aids may generate partial or simple utterances as a method of provoking adults into talking on a theme related to the communication aid generated utterance (von Tetzchner & Martinsen, 1996). Similarly, Smith (2003) describes conversation whereby the topic for the talk is set up by the child in communication aid use and the subsequent comment developed collaboratively between the participants (Smith, 2003).

The second extract provides a further illustration of the core characteristics of VOCA use described in extract 20. These are: David's actions in projecting the possibility of VOCA use; a turn initial pause in which Martin engages in pre-beginning aspects of the VOCA mediated turn; Martin's early orientation towards David before the realisation of a single letter and the combination of this VOCA speech with non-verbal action, on this occasion to realise an expletive. This extract differs from the other episodes of VOCA use in this conversation in that Martin conducts a self-initiated self repair (Schegloff et al., 1977).

In the immediately preceding talk the boys have been talking about swimming with Daphne, when David says "um anything more about that person" (lines 160 and 162).

Extract 21 (M&D: 160 - 179)

→ 160 D um⌈((*looks at VOCA*))⌉ anything
161 ⌊ (1.0) ⌋
→ 162 D ⌈ more ⌉ ⌈ about ⌉ (.)⌈ that person ⌉=
163 ⌊((*nods at VOCA*))⌋ ⌊((*turns to M*)) ⌋ ⌊((*looking at M*)) ⌋
164 M =[ɑ:hə]
165 M ⌈((*orientates to VOCA*)) ⌉ ⌈((*starts switching*)) ⌉
166 ⌊ (2.7) ⌋ ⌊ (4.0) ⌋
→ 167 M ⌈* ***to talk*** ((*glances up mouth open then back to VOCA*))⌉
168 D ⌊ ((looking at M)) ⌋ (2 syllables)
169 M ⌈((*switching*))⌉ * ⌈⌈((*switching*)) ⌉ * ⌈((*switching*)) ⌉⌉
170 ⌊ (3.1) ⌋ ⌊ (6.6) ⌋ ⌊ (1.6) ⌋
171 D ⌊ ((*looking at camera*)) ⌋
→ 172 M ((*starts turning to D*)) ⌈* ***f*** ⌉ =
173 ⌊((*looking at D*))⌋
→ 174 M =⌈((*raises up in seat looking up opens mouth*))⌉
175 C ⌊ ((*looking at M*)) ⌋
→ 176 D ⌈yeah (.) ⌈I would though M⌈ a r ⌉tin I ⌈would
177 M ⌊((*at peak of motion*))⌊ [hə?] ⌊[e?]⌋ [ɜ:]
178 ⌊((*returning to seat*))
179 D I would (.) what about you

In the same way as each of the episodes of VOCA use in this conversation, this extract begins with David's use of an explicit turn allocation. David says, "um" (line 160), claiming the next turn and implicating himself in further talk; he then looks at the VOCA for 1.0 second before asking, "anything more about that person" (lines 160 and 162). The question is phrased in such a way that in order to align with it in the production of further talk about Daphne, Martin will be required to use his VOCA. Furthermore, David is looking at the VOCA when he speaks and when saying the word "more" he nods towards the VOCA before turning to look at Martin. The exact moment that he makes a request for the possibility of more talk about Daphne, David displays the possibility for VOCA use in the next turn. It has been observed frequently in this analysis that speaking partners make explicit their expectations for how the VOCA might be used. Although David's use of the term "anything more" leaves open the possibility that Martin may talk about any aspect of that person, in referring to Daphne as "that person" he reflects the risqué nature of

the prior talk and he provides a context in which Martin can initiate some risqué talk using minimal VOCA speech. David will therefore be able to make sense of these actions within a context in which risqué or rude talk is expected.

At the moment that David ends his turn Martin is looking at him and he is heard to vocalise "[ɑ:hə]" (line 164). This action is not treated as sequentially relevant here and Martin then turns his head through almost a full 90 degrees to bring it into the midline and orientated back to the VOCA. Martin's physical realignment and preparation for VOCA use takes 2.7 seconds and it is at this point that he begins activating his head switches.

Martin is engaged in pre-beginning elements of his turn for 4.0 seconds before the first element of his turn "***to talk***" (line 167) is heard. During this time David waits in silence. Immediately following this VOCA mediated utterance Martin conducts a self-initiated self repair (Schegloff et al., 1977). He does this by holding his head still, opening his mouth and glancing upward briefly before orientating directly back to his VOCA and continuing with its operation. David then speaks to Martin. The analysis will return to this feature later, for now it will examine the remainder of the utterance.

Following this brief exchange Martin is observed to continue working with his VOCA and two bleeps are heard at intervals of 3.1 and 6.6 seconds (line 169). Then, 1.6 seconds after the second bleep, Martin begins to turn towards David and a third bleep is heard followed immediately by production of the single letter "***f***" (line 172). As seen in extract 20, Martin is able to orientate towards David before the production of the VOCA mediated speech, so at the moment that it is produced he has moved into a state of shared gaze with David. It is in the instant immediately after the VOCA produces the single letter "***f***" that he initiates an exaggerated non-verbal action, rising up out of his chair, looking upward and opening his mouth. Again, as observed in extract 20, once Martin reaches the peak of this vertical movement David speaks, treating this physical location within the sequence of actions as the first possible TRP, saying, "yeah (.) I would though Martin I would" (line 176). Martin is heard to vocalise in overlap with David's turn here but it is not

orientated to as additionally relevant to the interaction. This single letter "*f*" produced in isolation could signal any number of different meanings. However, David's earlier use of "anything more about that person" (line 160 and 162) and in particular its tacit suggestion that a risqué next turn is possible provide a sequential context in which Martin's use of a single letter and exaggerated non-verbal action may be understood as an expletive. As seen in extract 20 Martin foregrounds the reference and then provides some treatment of it informing the recipient about how it should be heard. David's response displays that he has assigned unambiguous meaning to Martin's actions.

In this way Martin orientates to the sequentiality of the interaction as a resource that allows for the strategic use of limited, and therefore relatively rapid, VOCA generated speech and non-verbal action combined. Furthermore, in stopping his turn here, Martin calls upon the boys' shared knowledge of the lascivious nature of the events of the talk, that is, evoking their "guilty knowledge" of a mutual interpretation of these actions (Jefferson, 1985).

Now analysis returns briefly to the issue of Martin's self-initiated self repair. It has been noted that Martin signals the repair initiation through non-verbal actions including looking up. David observes these actions and on their completion he speaks to Martin, however what is said is unintelligible. It is not possible to state unequivocally that David orientates to this non-verbal action as a signal that the next element of the VOCA mediated turn should replace the term "***to talk***". Nevertheless, this element of the VOCA mediated turn is not orientated to once the turn has reached completion, and Martin does not obviously mark this absence as accountable. Like most self-initiated self repairs in conversation between speaking adults, Martin's action takes place in the same turn as the trouble source. One significant benefit of signalling repair non-verbally in this way is that the signal may be located immediately after the trouble source, that is, at a relevant sequential location for this class of action (Schegloff et al., 1977). In this way potential troubles are signalled immediately and the subsequent utterance can be understood in light of the initiation of repair.

The third extract provides a further illustration of the recurring features of VOCA use: David's use of a meta-interactional turn, the realisation of a turn initial and pre-beginning elements of VOCA use therein, Martin's orientation to David in advance of the VOCA generated word and in this instance the realisation of humour. In the moments prior to the start of this particular example the boys have been talking about Daphne.

Extract 22 (M&D: 187 – 214)

→	187	D	⌈ anymore ⌉
	188		⌊*((looking at M))*⌋
	189		(0.6)
	190	M	*((starts to turn to VOCA))*
	191	M	⌈ *((switching))* ⌉ *
	192	D	|*((looking at M glances to VOCA and back to M then back to VOCA looking closely at interface))* |
	193		⌊ (6.1) ⌋
	194	M	⌈ *((switching))* ⌉
	195	D	|*((looking at VOCA))* |
	196		⌊ (0.7) ⌋
	197		(doorbell outside room rings)
	198	M	⌈ *((switching))* ⌉
	199	D	|*((looking at VOCA))* |
	200		⌊ (0.8) ⌋
	201	D	shh *((looks at M))*
	202	M	⌈ *((switching))* ⌉ *
	203	D	|*((looks at camera looks at door looks ahead looks at camera))*|
	204		⌊ (9.0) ⌋
	205	M	⌈ *((switching))* ⌉
	206	D	|*((looks at VOCA, looks past M))* |
	207		⌊ (3.3) ⌋
→	208	M	* ⌈*((turns to D smiling))*⌉ ***baby***
	209		⌊ (0.3) ⌋
→	210	D	yes Martin=
	211	M	=[ɑjɑ:]
	212	D	would you
	213	M	[ɑhjɑ:](.)⌈[ɑ:rə]
	214		⌊*((turns away from D))*

At the beginning of this extract David asks Martin whether or not he wishes to make a contribution to the talk at this point by asking "anymore" (line 187). This makes relevant a response from Martin. In order to align with this offer fully and contribute further Martin is required to use his VOCA. So, in this way David provides an explicitly notified next location for Martin to take a turn and to use his VOCA, and as such, this turn falls within a class of meta-interactional actions observed prior to VOCA use. After 0.6 seconds Martin orientates towards his VOCA and starts working with it in the likely initiation of an utterance, and 6.1 seconds later the first pre-beginning VOCA bleep is heard (line 191). Martin continues working with his VOCA and David watches the VOCA interface, much in the same way as Colin was observed to do during Jamal's VOCA mediated turn development. Then, 0.7 seconds later a bell is heard to ring briefly outside the room David says "shh" and looks at Martin (line 201). It is not certain what this action might be doing here but it does not impact on the progression of the VOCA mediated turn. During the next 9.0 seconds Martin continues to work with his device (line 202) while David looks around the room including at the video camera (line 203). A second bleep is heard (line 202) and 3.3 seconds later a third is generated (line 208). Again, as seen in extract 20 and 21, in the period between the final bleep of the pre-beginning period and the realisation of the VOCA mediated utterance Martin turns towards David smiling so that when the word is produced he is looking at David. Martin is unable to manipulate prosodic or temporal aspects of his VOCA mediated turn that might be used as paralinguistic cues. Like extract 20, Martin's smile here has particular significance in signalling how the VOCA mediated turn is intended to be heard, that is, with some humour.

Next the VOCA generates the single word "***baby***" (line 208), and David responds to this saying, "yes Martin" (line 210). As seen in extract 20, Martin's VOCA utterance uses the humorous nature of the interaction generally to generate a meaningful single word utterance combined with a smile with humorous and risqué intent. Equally, David orientates to the prior sequence of talk about Daphne to make sense of this turn. David shows this understanding first by receipting the turn, at which point Martin vocalises, and then developing its theme asking "would you" (line 212).

The fourth example provides another illustration of the features of VOCA use in this conversation but differs slightly from extracts 20, 21 and 22 in that David is observed to enter Martin's turn in progress. This action reflects the speaking partners' turn entry observed during Jamal's and Tina's VOCA use, but this turn entry is realised differently.

Extract 23 (M&D: 068 – 093)

	068	M	((*turns slightly away from D orientating towards midline & breaking mutual gaze with D*)) =
→	069	D	go on ((*taps M on the shoulder twice*))
	070	M	⌈((*moves head between headswitches, audible exhalation, first activation of switch heard*))⌉
	071		⌊ (1.5) ⌋
→	072	M	⌈((*switching*))⌉ * ⌈((*switching*))⌉ * ***I***
	073		⌊ (4.2) ⌋ ⌊ (1.6) ⌋
	074	M	⌈((switching))⌉ * ⌈ ((*switching*)) ⌉
	075		⌊ (1.3) ⌋ | (5.2) |
	076	D	⌊((*turns away from M*))⌋
→	077	D	⌈ Mark's outside ⌉ ⌈the door ⌉
	078		⌊((*turning back to M*)) ⌋ ⌊((*facing M leans slightly into M*))⌋
→	079		=((*glances to door*)) ⌈((*turning back to VOCA*))
	080	D	⌊eh(.)hh
→	081	M	⌈((*switching*))⌉ * ***like***
	082		⌊ (1.7) ⌋
	083	M	⌈((*smiles and looks at D*))⌉
	084		⌊ (2.08) ⌋
→	085	D	guess who
	086	M	((*smiling*))
→	087	D	you like Daphne as well
→	088	M	[heəhə]
	089	D	as much as me
	090	M	[heə:]
	091	D	((*nods*))
	093		(1.0)

As observed in the extracts above, David brings about Martin's VOCA use explicitly through the use of a meta-interactional turn. In this instance David reuses part of his first meta-interactional command outlined in extract 20 saying, "go on", and he taps

Martin on the shoulder twice (line 069). Martin then orientates to his VOCA and begins working with it. The first pre-beginning VOCA generated bleep is heard 4.2 seconds later and then a second is heard 1.6 seconds after that. This second bleep is followed immediately by the single word "***I***" (line 072). Martin continues using his switches and generates a further bleep 1.3 seconds later. This continued VOCA orientated action signals the likelihood that a further VOCA mediated utterance is forthcoming. At this point David turns through approximately 180 degrees and looks to his right. Then, turning back towards Martin he enters Martin's turn in progress to address him directly saying, "Mark's outside the door" (line 077), and leaning in towards him conveying a sense of excited, conspiratorial talk. This turn entry reflects speaking participants' actions in the two prior conversations. Interestingly, Martin glances to the door and then straight back to his VOCA, and continues working with it. As Martin turns back towards his VOCA David produces a short laugh, "eh (.) hh" (line 080), which Martin is observed to orientate to by smiling briefly as he takes up with his VOCA again. It is evident that like Colin and Lucy, David treats the intra-turn pauses as an opportunity to speak. Martin shows considerable ability in responding to David's turn entry while continuing with turn development.

One point seven seconds later a further bleep is heard followed immediately by the VOCA generated word "***like***" (line 081), at which point Martin turns and looks at David, moving out of speakership. As seen in extracts 20 and 21, in smiling (line 083), Martin signals how his incomplete turn might be heard. After 2.1 seconds David says, "guess who" (line 085), treating this VOCA mediated utterance and Martin's orientation towards him as signalling the end of the turn, and as a puzzle to solve. Martin continues to smile at David signalling implicitly that his contribution is complete and that David should go ahead with a guess (line 086). David then provides an answer saying, "you like Daphne as well" (line 087) and Martin is heard to vocalise "[heəhə]" (line 088). David treats this as an affirmation of his guess as evidence by his development of the talk with a lighthearted question, asking, "as much as me" (line 089). So again, a recurring pattern of events is evident: David uses a meta-interactional turn to set up VOCA use next. Martin engages in pre-beginning elements of his turn and in this instance David enters the turn underway.

Martin produces an incomplete turn combined with his use of a smile to signal humour.

7.1.1 Summary

Martin uses his VOCA on only four occasions during his conversation with David. This is in strong contrast with Jamal for whom VOCA use is the preferred mode of interaction. It is evident, however, that Martin's VOCA use shares some similarities with Jamal's in that the speaking partner initiates each occasion of its use through explicit orientation to VOCA use. It is invariably the case, and as observed in Jamal and Tina's VOCA use, that Martin's VOCA mediated utterances are characterised by a significant turn initial pause within which Martin engages in pre-beginning aspects of the VOCA mediated turn.

In two instances (extracts 20 and 22) Martin uses his VOCA to generate a single word and in one instance he generates a single letter only (extract 21). In two instances also (extracts 20 and 21) he uses exaggerated non-verbal actions and vocalisation combined with minimal VOCA mediated utterances to significant affect in the realisation of risqué talk. He demonstrates abilities in adapting his turns to the limitations of VOCA use and does this in a skilled and amusing way.

It appears that David rather than Martin orientates to the VOCA as a resource for the development of the conversation. Interestingly, unlike Colin who typically makes explicit his expectations for the type of VOCA mediated turn Jamal might take and, on occasion, the content of the turn, David organises VOCA use in a way that provides Martin with opportunities to develop the conversation in any number of ways. Once initiated Martin demonstrates an ability to use minimal VOCA mediated utterances strategically and therefore relatively quickly in the development of the conversation. It is notable also that, unlike Jamal and Tina, he displays a specific non-verbal strategy for conducting a self-initiated self repair (see extract 23). In this way he may avoid some of the difficulties in VOCA use identified in the prior conversations.

Having considered how VOCA use comes about and the realisation of VOCA mediated utterances the analysis now considers how the interaction is organised when Martin contributes through unintelligible vocalisations and non-verbal actions only.

7.2 Martin's placement of vocalisations and non-verbal actions

It is apparent that Martin generates a great number of vocalisations during the conversation. In the context of this analysis the term vocalisation is used to describe vocal sounds that lack intelligibility. It is notable that although Martin's vocalisations and non-verbal actions may not be intelligible in terms of their content, he displays considerable competence in using these resources to display understanding and appreciation of David's talk. Importantly, it is the placement of such actions with respect to David's turns that allow him to achieve this. In this way he shows collaborative alignment with the course of the conversation and David's actions. In turn, David also shows sensitivity and responsiveness to such actions.

Extract 24 below illustrates two examples of Martin's skilled placement of vocalisation. The first of these (lines 087-098) provides examples of his placement of vocalisations at the TRP of the prior turn and how he may generate an extended vocalisation in appreciation of the mood of the prior turn. The second example demonstrates how he may align his actions in overlap with David's turn, again to show appreciation of the type of turn underway.

The boys have been talking about their relationship with Daphne. The talk immediately prior to the first target vocalisation (line 088) is presented to provide the reader with the conversational context in which these events take place. Elements of this prior exchange have been discussed earlier (extract 22, page 214) and are described only briefly here.

Extract 24 (M&D: 081 – 118)

	081	M	⌈((*brief smile and continues switching*))⌉ * ***like***
	082		⌊ (1.7) ⌋
	083	M	⌈((*smiles and looks at D*))⌉
	084		⌊ (2.1) ⌋
	085	D	guess who
	086	M	((*smiling*))
	087	D	you like Daphne as well
→	088	M	[heəhə]
	089	D	as much as me
→	090	M	[heə:]
	091	D	((*nods*))
	092		(1.0)
→	093	D	u:m
	094		(0.7)
	095	D	would you like (.) >YEAH BUT I THOUGHT YOU SAID YOU DON'T LOVE HER<
→	096	M	[heəh] (.) [jea:ə: ⌈ ɜ: : hɜ: : : : : : : :] ⌉
→	097	D	⌊ we both (.) we both love ⌋'er really
→	098	M	[hæɪ] (.) ((*head drops down to left side face still facing forward M holds his position*))
	099		(1.0)
	100	M	⌈ [h∧h] ⌉
	101		⌊((*head flops to left smiling looking forward*))⌋
	102	D	und ⌈h ⌉
	103	M	⌊[ɹe⌋æh]
→	104	D	°she's got nice°=
→	105	M	=↑[eɹeəhəhə⌈h:]
→	106	D	⌊ she's got nice⌈legs un that (.) ⌈init
→	107	M	⌊[eəɹh] ⌊[eə:]
	108	M	↓[ə:]
→	109	D	nice (.) b⌈um
→	110	M	⌊↑[æəɹeæ:ɜ]
	111	D	((*smiles and moves left hand rapidly*))
	112	M	[ehəhəhə heəh:]
→	113	D	(h)nice =
→	114	M	=°h [he?] ((*looks down at lap and back to* D)) [hə]
→	115	D	yeah

116 M ⌈[ehæh:] ⌉

117 D ⌊((*look away*))⌋ ((*looks back to M*)) anything else

118 M [h:æ::jə]

At the start of this extract Martin has just finished the VOCA mediated turn "***like***" and he is smiling at David (line 081). David then says, "guess who" (line 085) and with Martin continuing to smile (line 086) David offers an answer saying, "you like Daphne as well" (line 087). Now the first example of Martin's effective placement of vocalisation is seen as he vocalises promptly at the TRP of David's turn generating, "[heəhə]" (line 088). David implicitly orientates to this as a confirmation of his guess by developing this theme asking, "as much as me" (line 089). Again, promptly at the TRP of this turn Martin vocalises, "[heə:]" (line 090). David shows his treatment of this by nodding (line 091). So, within the context of the prior turn David hears Martin's prompt initiation of vocalisation at the TRP as approximating "yeah" responses.

After 1.0 second David speaks again saying, "u:m (0.7) would you like (.) >YEAH BUT I THOUGHT YOU SAID YOU DON'T LOVE HER<" (lines 093-095). Here David restarts his turn, recognisably shifting the form of the turn underway from the start of a question: "would you like", to a new TCU, ">YEAH BUT I THOUGHT YOU SAID YOU DON'T LOVE HER<". This new TCU is given prominence in comparison with the prior talk through a sudden onset of increased and sustained speed and volume. Here David claims some knowledge of inconsistencies in Martin's reported feelings for Daphne and the turn design implicates Martin in some form of defence or clarification of his position. Martin displays his orientation to David's accusation first in the prompt initiation of a vocalisation at the TRP of the turn, "[heəh]" (line 096) and then in the initiation of an elongated vocalisation, "[jea:ə:ɜ: : hɜ: : : : : : : :]" (line 096).

Although this vocalisation is unintelligible in terms of specific language structure, it conveys an appreciation of the spirit of David's prior turn. David then speaks again initiating his talk on overlap with Martin's vocalisation saying, "we both (.) we both love her really" (line 097). Here David orientates to the vocalisation as a defence of

the accusation. The use of "really" at the end of this turn signals also that, retrospectively, his prior accusation should be heard as a tease rather than a serious accusation. In turn, Martin aligns with this proposal saying, "[hæɪ]" (line 098) and dropping his head down to his left side with his face facing forward, mirroring David's step down from the heightened accusation. In the conversation between Tina and Lucy it was noted that Tina may texture her use of non-verbal action to suggest a type of response other than a "yes" or "no" (see extract 19 above). In this conversation Martin uses an elongated vocalisation to signal his understanding and appreciation of David's prior turns. One second later (line 097) Martin initiates a vocalisation: "[h∧h]" (line 100), his head flopping to his left. David then speaks saying, "undh" (line 102), heard as "and". The use of "undh" implicitly deletes Martin's prior vocalisation as sequentially relevant. Martin is heard to vocalise again at the TRP of the prior turn saying, "[ɹeæh]" (line 103).

Now, in this next sequence Martin displays further significant competence in placing his vocalisations at significant points in the ongoing talk. He uses sharp rises in pitch to display his appreciation of David's actions and, in this case, to align with and join in with the naughtiness of the talk.

At the end of Martin's vocalisation, "[ɹeæh]" (line 103), David offers an assessment of Daphne saying quietly, "°she's got nice°" (line 104). Notably, Martin vocalises in overlap with the next due element of this turn, and he does so with a rapid and marked rise in pitch, saying,"↑[eɹeəhəhəh:]" (line 105). In this way, Martin generates an excited vocalisation at the moment at which David is due to complete the assessment and the exaggerated rise in pitch at its start conveys a sense that he is treating the assessment as rather rude. In vocalising exactly at this point and before the completion of the turn his actions echo a class of overlap onset termed "recognitional onset" (Jefferson, 1983). In instances of recognitional onset recipients are understood to have recognised the gist of the turn underway before its completion and initiate a new turn based on that judgment. Martin's initiation of an exaggerated vocalisation before the completion of the assessment displays his understanding of the gist of the turn. Indeed, the placement of his heightened

vocalisation at exactly the moment the specific feature of the assessment would be made displays his orientation to its rudeness.

David stops talking during Martin's vocalisation and as it comes to an end he restarts the assessment saying, "she's got nice legs and that init" (line 106). This turn reveals that Martin's earlier anticipation of the lasciviousness of David's assessment was accurate. Here again Martin vocalises at exactly the moment that the crucial point of the assessment is revealed. He vocalises saying, "[eəɹh]" (line 107) at exactly the point that David says "legs" and "[eə:]" as the turn reaches completion (line 107). Following David's turn Martin vocalises again, this time with a marked fall in pitch "↓ [ə:]" (line 108).

Subsequently, David initiates a further and more sensational assessment saying, "nice bum" (line 109). Like Martin's recognition onset entry into David's turn, described above, Martin initiates another excited vocalisation "↑[æəɹeæ:ɜ]" (line 110) in overlap with the summary of the assessment "bum". Again the placement of the action displays his orientation to David's cheeky assessment and his collaboration in its naughtiness. David then smiles and is seen to move his left hand rapidly gesturing towards his lap (line 111) and Martin orientates to this gesture with an extended vocalisation "[ehəhəhə heəh:]" (line 112) embedded with laughter.

Thus far the analysis has shown that in vocalising promptly at the TRP of a prior turn and in realising his vocalisations with marked changes in pitch and generating extended vocalisations Martin may display his understanding and appreciation of the prior turn. Also, in placing vocalisations at critical points of overlap with a turn in progress he displays his recognition of the type of turn underway. This type of action also allows him to unite directly with the actual production of the naughty and rude talk rather than acting as a respondent to it. The next exchange of turns shows a further way in which the boys may share the responsibility for being rude.

The boys then look at each other and David initiates a further assessment saying, "(h)nice" (line 113). At the exact moment that David completes the word "(h)nice" Martin vocalises, saying, "°h [he?]". He then looks down at his lap and back up at

David and at the moment he makes eye contact with David again he vocalises again, saying, "[hə]" (line 114). David receipts this action saying "yeah" (line 115), and Martin produces a further vocalisation "[ehæh:]" (line 116).

Martin uses vocalisation and physical movement to display understanding of and alignment with David's initiation of a new assessment by building his action into the turn. This is accomplished through well-timed vocalisation, movement of gaze shifting away from David towards his lap and back to David, accompanied by a final vocalisation. Martin shows considerable competence in the sequential positioning of his actions with respect to the turn in progress. In saying "yeah" David treats these actions as meaningful. In acknowledging but not specifying the nature or referent conveyed in Martin's actions David displays his treatment of them as rude and in line with his own intentions for the turn he initiated. So, the boys use close ordered sequencing of spoken events, unintelligible vocalisations and physical movements in the mutual progression of the talk, and on this occasion, in the collaborative development of a single utterance. Interestingly, Martin's actions here are similar to the recipients' anticipatory completion of speakers' turns reported in conversation between speaking participants (Lerner, 1996). Recipients' anticipatory completions may be brought about by a number of features in turns, including for example, their form as compound TCUs (Lerner, 1991; Lerner, 1996). Such TCUs are designed such that the initial elements signal roughly what it will take to complete the TCU. Grammatical forms such as "if-then" or "when-then" are examples of such TCUs. For Martin and David it is possible that the recurring design of David's assessments, formulated here as 'nice plus body part', provides an opportunity for Martin to carry out this type of anticipatory completion. That is, having heard David say "(h)nice" (line 113) some body part is due next. Martin shows considerable skill in taking advantage of this feature of David's assessments to provide an assessment of his own.

7.2.1 Summary

Where the VOCA is not used Martin contributes to the conversation through vocalisations and non-verbal actions. In contrast to the passivity or dependency of children using communication aids reported in much of the aided communication literature (e.g., Light et al., 1985a,b; Basil, 1992; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999) these examples provide strong evidence of Martin's active engagement with the conversation. He displays significant conversational ability in aligning his non-verbal actions in sequentially significant locations within the exchange of turns and within David's turn in progress. He also displays a strong collaborative orientation to the conversation by reflecting the mood conveyed by the prior turn through changes in pitch movement and elongation of his vocalisation.

Having seen how Martin may contribute actively to the conversation through vocalisation and non-verbal actions the analysis will now consider the different ways in which David may orientate to such actions. It is evident that Martin vocalises frequently during the conversation. An interactional issue that has implications for the structure of the talk is how David should orientate to these vocalisations. First, analysis will describe how David may choose to overlook unintelligible vocalisations as conversational contributions and secondly, the analysis will examine how he treats Martin's vocalisations and non-verbal actions with rich meaning.

7.3 David's treatment of Martin's vocalisations and non-verbal actions with rich meaning

It is notable feature of the interaction that David may ignore Martin's vocalisations. Indeed, it is a recurring feature of this chapter that in describing the sequential context in which particular targeted exchanges take place, reference is often made to Martin's vocalisation and the fact that David does not orientate to such action as relevant to the conversation. It is also a recurring feature of the conversation that David may variously imbue Martin's unintelligible vocalisations and non-verbal actions with a rich sense of meaning. This involves treating them as implicitly

conveying rude or bawdy meaning, or more explicitly as apparently 'embarrassing' questions. Thus David orientates to Martin's unintelligible actions as a resource for the development of the conversation and in the production of humour. In a similar way in which Lucy portrayed Tina with competence in her apparent ability to watch television all day (extract 19, page 193), David's actions credit Martin with a particular type of competence and portray him as an active co-participant in the talk. Finally, David's actions and Martin's alignment with the type of talk they create displays something of the boys' relationship as peers.

First the analysis will examine one unequivocal example where David disregards Martin's prominent vocalisation. Second, six examples of David's rich treatments of Martin's actions are presented. Consider example 25.

Extract 25 (M&D: 556 – 580)

	556	D	um: (1.0) but she's alright in herself
	557	M	[ʃʊ⌈h:]⌉
	558	D	⌊hu ⌋ur:
	559		(0.9)
	560	D	she getting on better (?though?)
	561	M	[dʒeɹeɪ]
	562	M	⌈((*sits up and looks at camera, right arm stretched out waves a little*))⌉ [həʊ]
	563	D	| ((*puts glasses on and sits up looks at M*)) |
	564		⌊ (6.4) ⌋
	565	D	((*takes Martin's arm by the wrist*))
	566	M	⌈ [ɜfə?] (.) [hɜ] ⌉
	567		⌊((*looking at camera, pulls hand away*))⌋
	568	D	is that
	569		(1.3)
→	570	D	°any more°
	571		(1.4)
→	572	M	⌈ [wəwə] ↑[æ:] ↓[æ:] ↑[æ:] ⌉
	573		| ((*looking at D*)) |
	574	D	⌊((*looks to door, looks back to M*)) ⌋
→	575	D	um:
	576	M	[ŋ:] =

577 D = do you wish she was in your class

578 M [ə h]

579 (0.9)

580 D d'you thinks she might be moving up next year

Martin and David have been talking about Daphne and at the start of this extract David is describing his relationship with her. Martin is seen to align with David's talk by vocalising at the possible TRP of his turns (see lines 556 – 561). Martin is then observed to look at the video camera, stretch out his right arm, wave it gently and vocalise (line 562). At this time David is putting his glasses on having taken them off slightly earlier (line 563). He then takes Martin's arm (line 565) and Martin vocalises "[ɜfəʔ] (.) [hɜ]" (line 566), pulling his hand away. David begins to ask a question saying, "is that" (line 568), then after 1.3 seconds he asks quietly, "°any more°" (line 570).

The potential meaning and sequential implication of Martin's arm movement and vocalisation is uncertain. However, in asking the question "°any more°" (line 570) David locates Martin as the next speaker, offering him an opportunity to develop the talk. Alternatively Martin may decline this offer. After 1.4 seconds Martin enters the answer slot by vocalising, "[wəwə] ↑[æ:] ↓[æ:] ↑[æ:]" (line 572). When he vocalises he is looking at David and his vocalisation is characterised by marked rising and falling in pitch. During the vocalisation David looks to the door and then back at Martin. On returning his gaze to Martin and at the end of the vocalisation David says, "um" (line 575), claiming speakership and indicating more talk to come. Martin is heard to vocalise again saying, "[ŋ:]" (line 576), and exactly at the moment this vocalisation ends David asks, "do you wish she was in your class" (line 577).

It is apparent that despite the explicit request for possible further talk from Martin and Martin's own exaggerated vocalisation in the answer slot, David ignores the possible meaning intended of Martin's action. Essentially, this action is deleted as a conversational contribution, as evidenced by David's subsequent question projecting the talk forward. It is notable that David turns and looks to the door just at the time that Martin vocalises and he returns his gaze to Martin as his vocalisation finishes.

This action removes David from shared focus of eye-gaze during Martin's vocalisation and therefore from a visual recipiency of Martin's actions. Consequently, David potentially degrades the sequential implicative of Martin's vocalisation. Interestingly also, the new question "do you wish she was in your class" (line 577) is characterised by improved answerability compared with his prior question "°any more°" (line 570). The new question provides for the possibility that Martin may show a subsequent affiliation or rejection through non-verbal actions. Martin may therefore take a next turn though iconic gesture. This type of shift in answerability has been discussed in analysis of the conversation between Tina and Lucy (see extract 15, page 189). In that instance Lucy altered her initial question, providing a second alternative to allow for an answer that may be communicated non-verbally and understood unequivocally. Here David appears to alter the initial question with the same intention.

In this instance, despite Martin's realisation of a distinct and extended vocalisation in a sequential location specifically designed for him to take a turn, David ignores these actions. However, this is not exclusively the case and the analysis now considers how David may selectively treat Martin's vocalisations with rich meaning. The first three examples - extracts 26, 27 and the first example in extract 28 - illustrate David's treatment of Martin's actions with implicit meaning. The latter three examples - the second example in extract 28, extract 29 and 30 – show David's more explicit treatment of Martin's actions as 'embarrassing' questions.

The first of these examples is presented in extract 26. The early elements of this extract are shown here to provide a sequential context in which the target utterance is produced (line 219).

Extract 26 (M&D: 213 – 223)

208	M	* ⌈((*turns to D smiling*))⌉ ***baby***
209		⌊ (0.3) ⌋
210	D	yes Martin=
211	M	=[ɑjɑ:]
212	D	would you

	213	M	[ɑhjɑ:](.)⌈[ɑ:ɹə]
	214		⌊((*turns away from D*))
	215	D	but she⌈ain't got (.) (sh: that) ⌉ (.) she ain't got a boyfriend yet °so° =
	216	M	⌊ [æɜ: : : : :] ⌋
	217		=↑[ɑɹ:heɪ]
	218		(1.3)
→	219	M	[æ:] ↑[ə⌈ʊ:]
→	220	D	⌊all in good time Martin
	221		(0.4)
	222	D	⌈all in good time⌉
	223	M	⌊[hə: : : : : : : :ɜ:]⌋

In the conversation before the start of this extract the boys have been talking about sleeping with Daphne and Martin has generated the VOCA mediated word "***baby***" (see extract 21, page 211). In this extract David jokes that Daphne hasn't got a boyfriend yet (line 215). At the TRP of this turn Martin produces a vocalisation with a marked rise in pitch at the start "↑ [ɑɹ:heɪ]". Subsequently a lapse is evident in the turn taking and Martin enters this inter-turn pause with another vocalisation, on this occasion marked by a striking rise in pitch in the middle of the vocalisation "[æ:] ↑[əʊ:]" (line 219). It is just after the sudden rise in pitch that David speaks again saying, "all in good time Martin" (line 220).

David builds his turn on Martin's vocalisation treating it with an implicit sense of bawdiness related to Martin's apparent excitement at the possibility of being Daphne's boyfriend and sleeping with her. Importantly, it is David who imbues Martin's actions with this particular type of significance, cleverly playing on their unintelligibility as a source of salacious innuendo. He does this rather than orientating to Martin's actions as relevant to a specific referent, another type of meaning, or as a trouble source and therefore conducting an other initiated repair (Schegloff et al., 1977). In this way David projects Martin as a competent and active participant in the conversation, and more generally as a young male with sexual desires.

The second example presented in extract 27 below illustrates further David's treatment of Martin's non-verbal actions with an implicit and rich meaning.

Extract 27 (M&D 435 – 458)

	435	D	this is all about Daphne I suppose is it
	436	M	[nəeɪəh⌈h:]
	437	D	⌊um:
	438		(0.8)
	439	D	we:ll (.) she's alright (.) y'know⌈as a person (.) as (.) relationship I guess⌉
	440	M	⌊↑ [ɜ: hə:: hə : :] ⌋
	441		(1.0)
	442	D	y'na (.) I don't (.) ⌈(°1 syllable°)
	443	M	⌊↓[həɜ: : : :]
→	444	D	you got anything to say Martin
→	445	M	[hæɪ:h] ((*stretches up raises off seat mouth opened wide, drops slightly in seat becoming stationary looks at D*))
	446		(1.0)
→	447	D	well I would but I (.) y'a know
	448	M	⌈[æɜlɜ::æʔæɜ::⌉ ⌈æɹɜ: : : : :]
	449	D	⌊ (2.1) ⌋ ⌊I would
	450		(4.0)
	451	D	I⌈would⌉
	452	M	⌊[əɜh]⌋
	456		(1.0)
	457	D	how about (.)⌈you
	458	M	⌊[eveɪ]

The extract begins with David commenting on Martin's prior actions by saying, "this is all about Daphne I suppose is it" (line 435). Martin vocalises "[nəeɪəhh:]" (line 436) and David treats this as an affirmation, developing this theme saying, "um (0.8) we:ll (.) she's alright (.) y'know as a person (.) as (.) relationship I guess" (lines 437 and 439). Martin is observed to initiate a vocalisation at a possible TRP (line 440) and subsequently in overlap with the remainder of David's turn. After a 1.0 second lapse in the turn exchange David speaks again saying, "y'na (.) I don't" (line 442). At the micro pause following "I don't" Martin vocalises again (line 443) and the

remainder of David's turn is developed in overlap with this vocalisation, however his speech here is unintelligible (line 442).

Now David asks, "you got anything to say Martin" (line 444). As a question it makes relevant Martin as the next speaker. In this instance his turn is designed as a meta-interactional question, raising directly the status of the talk as the subject of the talk itself. Martin vocalises "[hæɪ:h]", (line 445) and stretches up, rising out of his seat, his mouth open wide. He then drops back slightly into this seat and fixes his gaze on David. Martin has been observed to use this type of action previously in combination with VOCA speech (see extract 20, page 206 and extract 21, page 211). David speaks one second later saying, "well I would but I (.) y'a know" (line 447). Martin then vocalises in a possible alignment with David's treatment of his prior actions (line 448) and David reiterates his stance towards the unintelligible vocalisation saying again, "I would" (line 449), initiating this in overlap with Martin's vocalisation.

Like extract 26, David treats Martin's actions with a rich sense of rather bawdy meaning, again employing the unintelligibility of Martin's actions as a resource to imply salacious meaning but without stating explicitly its specific nature. This example contrasts with extract 25 where David ignores Martin's vocalisation in a sequential location that is designed for Martin to take a turn. Here David locates Martin as the next speaker and he treats Martin's actions as displaying his incumbency of that role. In treating Martin's actions as initiating rather risqué talk he credits him with a particular type of competence. Furthermore, by developing the interaction in this way David provides some insight into how their relationship as peers is realised.

This next extract provides two further examples of David's treatment of Martin's actions with rich meaning. Like extract 27, the first example illustrates David's rich treatment of Martin's actions within the context that a turn by Martin is due. In this instance David also displays how the overhearing audience represented by the video camera provides a motivation for the use of innuendo. The second example follows

on quickly from the first and illustrates David's more explicit treatment of Martin's actions as an apparently 'embarrassing' question.

Extract 28 (M&D: 259 – 301)

→	259	D	use that ⌈((looking at VOCA *pats VOCA*))⌉ ⌈ ((*looks at M*)) ⌉
	260	M	⌊ ((*looking at D*)) ⌋ ⌊((*looking at D*)) ⌋
	261	D	⌈((*pulls hand back to pat VOCA*)) ⌉
→	262	M	⌊((*raises eyebrows and glances up*)) ⌋
	263	D	⌈((*hand moves back towards VOCA*)) ⌉
	264	M	⌊ ((*gaze lower to D*)) ⌋
	265	D	((*looks behind to location of door*))
→	266	D	⌈ use ⌉⌈ that ⌉
	267		⌊((*turning back to M*))⌋ ⌊((*looks at M*)) ⌋
	268	D	⌈((*looking at M*)) ⌉
	269	M	⌈((*looking at D*)) ⌉
	270		⌊ (1.0) ⌋
→	271	D	⌈your liberator ⌉
	272	M	⌊((*looking at D*)) ⌋
→	273	M	((*looks up raising eyebrows*))
→	274	D	⌈(°about me°) (4 syllables) (°but have you ever°)=⌉
	275		⌊ ((*mimics raising head*)) ⌋
→	276	D	= NO! of course I⌈wouldn't do that⌉
→	277	M	⌊ ((*smiles*)) ⌋
→	278	D	I know Martin but (.)⌈↑video ↓camera ⌉
	279		⌊((*leaning in to Martin gestures to camera*)) ⌋
	280	M	((*smile*)) [h: ⌈e] ((*looks at camera*))
	281	D	⌊nehuhu
	282	M	((*turns back towards D*))⌈[eɪə] ⌉
	283		⌊((*eyebrow flash*))⌋
	284	M	[ɑ: ⌈eɑ]
	285	D	⌊I wo:uld but (0.3) >y'know<
	286		⌈((M&D *look at each other*))⌉
	287		⌊ (1.0) ⌋
→	288	M	⌈ [eɪ]↓ [ʊ:] ⌉
→	289		⌊((*eye-gaze flicks down and back up to look at D*))⌋
	290		⌈((*M&D look at each other*))⌉
	291		⌊ (0.6) ⌋

→ 292 D ⌈°has she asked me ⌈out ⌈ (.) recen°
→ 293 M ⌊ ((*looking at D*)) ⌊((*starts to smile*)) ⌊((*smiling at D*))
→ 294 D (.) hhh ↑WE:ll.hh .NOT exactly but (.) y'know s=we're⌈ getting along ⌉
295 M ⌊((*leaning towards looking at D*))⌋
→ 296 D ⌈((*looking at M drops hands into lap and smiles at M*)) ⌉
→ 297 M | ((*looking at D and smiles back simultaneously*)) |
298 ⌊ (1.0) ⌋
299 M °[əh]° ⌈((*head turns slightly to right*)) ⌉
300 ⌊ (1.5) ⌋
301 D anything on you and Daphne yet

This extract begins with David issuing a meta-interactional command for Martin to use his VOCA saying, "use that" and he pats the VOCA (line 259). This class of meta-interactional command has been observed in the discussion of Martin's VOCA use (see extracts 20-23) and in the conversation between Jamal and Colin (see extracts 6 –8). David then withdraws his hand from the VOCA (line 261) and Martin is observed to raise his eyebrows and glance upwards (line 262). Then, David moves his hand back towards the VOCA (line 263) and at the same time Martin returns his turn gaze to David (line 264). At this point David turns to look behind him, towards the direction of the door (line 265) and as he returns his gaze to Martin he reiterates his previous meta-interactional command saying again, "use that" (line 266). They hold this position for one second (lines 268 and 269), but Martin does not obviously take action to comply with David's command. Consequently, David speaks again developing the command with an increment (Schegloff, 1996), saying, "your Liberator" (line 271). Liberator™ is the name of the device, and in naming the VOCA he makes explicit his prior use of "that" (lines 259 and 266) and reinforces unequivocally his expectations for Martin's next contribution to the talk.

Now, it is at the new TRP of David's turn that, for the second time, Martin looks up and raises his eyebrows (line 273) and returns his gaze to David. At that moment David speaks very quietly. Despite repeated listening the content of the utterance is uncertain (line 274). However, there is some evidence to suggest that this unintelligible utterance is aligned with Martin's non-verbal action. In speaking here David simultaneously raises his head and drops it back down in a reflection of

Martin's prior non-verbal action (line 275). His next speech suddenly becomes very audible, as he says, "NO! of course I wouldn't do that" (line 276). David initiates this element of his turn with significantly increased volume. Importantly, he abandons his orientation to the VOCA as the medium for Martin's next turn and designs his turn as a direct response to and built on Martin's actions. That is, he treats Martin's upward head movement and glance upward as signalling a particular type of meaning but he designs his turn in such a way that the precise treatment of Martin's action is left unsaid, achieving this through amusing use of the anaphoric pro-term "that" in, "of course I wouldn't do that". Although not explicitly stated David is probably referring to sleeping with Daphne. Like extract 27, in a location specifically set up for Martin to take a turn, David treats Martin's actions produced in that location with rich meaning. And again, David plays on Martin's unintelligibility using it as a resource for humour. These actions also project a certain type of 'laddish' competence onto Martin. They display and establish the boys' relationship through its shared features, in this instance their maleness in opposition to females. David then provides an account for why he cannot extrapolate on his treatment of Martin's actions, saying "I know Martin but (.) ↑video ↓camera" (line 278). The use of "I know" also hints at the possibility that he is treating Martin's smile (line 277) as a signal to develop the talk more explicitly.

Next the boys laugh together (lines 280 and 281), Martin vocalises again, quickly raising and dropping his eyebrows (lines 282 and 283). He then vocalises one more (line 284) and David speaks saying, "I wo:uld but (0.3) >y'know<" (line 285). So, David curtails the projected turn and exits rapidly from the prior risqué theme. Use of "y'know" evokes the boys shared unspoken understanding and alludes to a class of risqué possibilities, but again without stating explicitly the specific referent(s) under discussion. Over the next one second the boys share eye-gaze. Martin then produces an unintelligible vocalisation "[eɹ]↓ [ʊ:]" (line 288) realised with falling pitch and he simultaneously glances down and back up at David (line 289). Over the next 0.6 seconds the boys share eye-gaze once more (line 290). David's orientation to and treatment of these actions is evident in his next turn when he says, "°has she asked me out (.) recen° (.) hhh ↑WEe:ll.hh NOT exactly but (.) y'know s=we're getting along" (lines 292 and 294). This turn is delivered in two distinct halves. The

first half is delivered as a question: "°has she asked me out (.) recen° (.)", and the second phase of the turn is realised as an answer to that question: "hhh ↑WE:ll.hh NOT exactly but (.) y'know s=we're getting along". It is apparent that David treats Martin's vocalisation "[eɹ]↓ [ʊ:]" (line 288) as a question which he answers. Interestingly, David distinguishes between the question and answer elements of the utterance in a number of ways. The question element is delivered in a slightly quieter voice from the surrounding talk and with fairly flat intonation in comparison with the answer element. It is notable that within the course of this first element of the turn Martin is looking at David and he begins to smile (line 293) so that by the time the question reaches a TRP Martin is smiling fully at David. David appears to orientate to these actions as an affiliation and alignment with the design of the turn so far and consequently he provides an answer. Now, in contrast to the question element, the first word of the answer, "↑WE:ll", is initiated with increased volume, the vowel is elongated and it is produced with rising pitch that reaches its maximum height and emphasis in the subsequent word, "NOT". The remainder of the turn is delivered at a more typical volume for David's talk in general. Following completion of David's turn the boys hold eye contact and smile at each other (lines 296 and 297). Subsequently, Martin is heard to vocalise very quietly: "°[əh]°" (line 299) and he turns his head slightly towards his left, away from David (line 299). David then develops the talk along this theme saying, "anything on you and Daphne yet" (line 301).

David is seen to build his turn onto Martin's prior unintelligible vocalisation "[eɹ]↓ [ʊ:]" (line 288), treating Martin's actions as a question and the contrasting elements of this turn represent an orientation to the treatment and answer elements of the turn. The answer element of David's turn is touched off by Martin's smile developed in overlap with the question part of the turn. Interestingly also, the answer element of the turn is characterised by hedging and some delay. David orientates to Martin's actions as realising a type of question that place him in the awkward or superficially embarrassing position of answering a question about Daphne in the presence of an overhearing audience, and as such invests Martin with a particular type of competence. In this way David orientates to Martin's vocalisation as a potential resource for the progression of the talk and the inclusion of Martin as an active co-

participant in the accomplishment of the interaction. Martin is projected as a participant who initiates new trajectories for the talk, and the competence of the conversation is realised through its continued evolution as a product of both participants' action.

The third extract in this section provides a further illustration of David's treatment of Martin's actions with rich meaning and again as a question. In the immediately prior talk the boys have been joking about Daphne and discussing what she is like in class.

Extract 29 (M&D: 498 – 515)

	498	D	⌈ she's ⌉ alright (.) sometimes we have a bit of (.) fun=
	499	M	⌊°[ejɜ:]°⌋
	500	D	=⌈y'know a laugh ⌉(0.6) joke
	501	M	⌊ ↑[ɜeə: : : : :]! ⌋
	502		(1.1)
	503	D	all that kind of s⌈tuff
→	504	M	⌊↓[ɜ: : :]
→	505	D	°uh°
→	506		⌈((M&D *looking at each other*))⌉
	507		⌊ (1.4) ⌋
→	508	D	>what she do<
→	509		⌈((*just starts to smile*))⌉
	510		⌊ (0.5) ⌋
→	511		⌈↑never you ↓mi:nd
	512		⌊((*smile opens up*))
	513		[hɜ] ↑[eə] ↓[ɪ]
	514	D	⌈((*leans back in chair*))⌉
	515		⌊ (2.3) ⌋

The extract begins with David commenting, "she's alight (.) sometimes we have a bit of (.) fun" (line 498). Martin vocalises in overlap with the start of the turn "°[ejɜ:]°" (line 499) and again at a possible TRP "↑[ɜeə: : : : :]!" (line 501) and therefore in overlap with David's continuation of his turn, "y'know a laugh (0.6) joke" (line 500). After 1.1 seconds David revisits the turn again saying, "all that kind of stuff"

(line 503). At the TRP of this turn Martin vocalises, "↓[ɜː : :]" (line 504), the initiation of the vocalisation being slightly in overlap with the end of David's turn. Martin initiates this vocalisation at a much lower pitch than his immediately prior vocalisation and it is produced with marked falling pitch and Martin drops his head slightly here. At the end of this vocalisation David is leaning forward and sideways so that he is looking directly at Martin and in close proximity to his face.

Now the interaction develops in the same way that David organised the treatment of Martin's actions described in extract 28 (page 232). The boys look at each other for 1.4 seconds (line 506) before David says, ">what she do< (line 508). This provides a candidate treatment of Martin's prior unintelligible vocalisation. Like extract 28 he designs the treatment as a question and so implicates himself in providing an answer. At the TRP of this treatment Martin just starts to smile, the corners of his lips rising slightly, showing affiliation with the treatment. David treats this action as supporting the treatment and he speaks again to answer the question saying, "↑never you ↓mi:nd" (line 511). Like extract 28 above the treatment and answer elements are designed to contrast significantly with each other. The treatment element ">what she do<" (line 508) is spoken more quickly than the prior talk and with relatively flat intonation in its delivery in comparison with David's typical spoken language. In contrast the initial word of the answer element "never" is delivered with marked rise in pitch and the final term "mind" is elongated and marked by falling pitch.

At the end of David's turn Martin vocalises "[hɜ] ↑[eə] ↓[ɪ]" and smiles (line 513), generating his vocalisation with a marked rise and fall in pitch, showing his appreciation of and alignment with the mood of David's answer (see also extract 24, page 220). David then leans back in his chair (line 514) and a lapse in the turn taking becomes evident.

So again here David is observed to treat Martin's unintelligible vocalisation with rich meaning, and again as question. The style of the answer "never you mind" implies that the question is one that is prying somewhat into his relationship with Daphne, seeking information he does not wish to reveal. David conveys a particular sense of

competence onto Martin, that is, as an initiator of talk and a participant who might seek to manipulate or embarrass him.

The last example presented in extract 30 below provides a further illustration of David's treatment of Martin's vocalisation as a question and one that puts him in an uncomfortable position. This example differs from the prior examples in the way in which the treatment is organised.

Extract 30 (M&D: 141 – 163)

→	141	D	does your (.) ⌈((*gestures with both hands moving in parallel up from lap*))
→	142	M	⌊ ↑ [æhəhəhɜ]
	143		(0.4)
	144	D	does it (.) ((*repeats gesture with both hands in parallel moving vertically up from lap*))
	145	D	((*hands reach top height of raising*)) ⌈((*hands move in parallel back down to lap*))
	146	M	⌊ [ɑ: : ɜ: : æ]
	147	D	⌈((*looks forward and back to M*))⌉
	148		⌊ (1.5) ⌋
→	149	M	°[ʙ]°
	150		(0.5)
→	151	D	does your (.) you asking m⌈e do my ⌉
→	152	M	⌊ °[ʙ]° ⌋
	153	M	⌈((*looking at D*))⌉
	154		⌊ (0.6) ⌋
→	155	D	d'know
	156	M	[hæɜ::]
	157	D	yeah it doh
	158	M	[ve:ʔ] (.) [bə]
	159		(0.9)
	160	D	um⌈((*looks at VOCA*))⌉ anything
	161		⌊ (1.0) ⌋
	162	D	⌈ more ⌉ ⌈ about ⌉ (.)⌈ that person ⌉=
	163		⌊((*nods at VOCA*)) ⌋ ⌊((*turns to M*)) ⌋ ⌊((*looking at M*)) ⌋

In the conversation before the start of this particular extract the boys have been talking about swimming with Daphne. This extract starts with David asking, "does

your" and he produces a gesture with both hands moving in parallel up from this lap (line 141). Here David designs the early part of his turn as a question but the critical and rather rude and naughty element of the utterance is left intentionally unsaid. It seems most likely that these actions refer to becoming sexually aroused when in the swimming pool with Daphne, but the meaning is implicitly realised by reference to the sequential context of the talk up until this moment, that is, swimming with Daphne, and the hand gesture that David performs at the end of the spoken element of this turn. The turn is spoken as a question but is treated as invitation for laughter by Martin. He generates a vocalisation characterised by its laughter quality, "↑[æhəhəhɜ]" (line 142) in overlap with the gesture - the unspoken risqué locus of the humour. This actions reflect "recognition onset" (Jefferson, 1983) described earlier (extract 24, page 220). David then repeats the question and gesture (line 144 and 145), recycling the humour and again Martin vocalises in overlap with David's gesture "[ɑ: : ɜ: : æ]" (line 146).

Over the next 1.5 seconds David is observed to turn away from Martin, briefly looking forward and down before looking back at him. On David returning his gaze Martin is observed to vocalise gently, "°[ʙ]°" (line 149) producing something akin to a soft 'raspberry'- type noise. In generating this sound he spills a small amount of saliva. Although the placement of this action coinsides with David's return of gaze, in itself, this noise does not convey obvious meaning. Then, 0.5 seconds later David speaks. Initially he appears to revisit his own prior question saying, "does your" (line 151), but then abandons this course of action and restarts the question, generating a very particular type of turn: David asks "you asking me do my" (line 151). In overlap with the vowel of "me" and the remainder of the turn "do my" Martin is heard to reproduce this same type of vocalisation. Here David treats Martin's non-speech action as a possible question based on his own prior talk, and he seeks Martin's public alignment with this speculative treatment and therefore agreement to develop the talk along these lines, extending its humorous theme.

Martin does not obviously consent to this proposition but looks at David (line 153). Nevertheless, after 0.6 seconds David goes on to provide a non-committal answer to the question saying, "d'know" (line 155). Again, this throws up an interesting

observation. Not only does David treat Martin's unintelligible vocalisation with rich meaning but also as a question and one that places himself in a self-conscious or discomforting position. Again, in this way David evokes Martin with a degree of competence within the conversation and as a provider of a first pair part initiation. Consequently, Martin's role in the conversation is realised as an active participant and one who shares responsibility for the direction of the talk. Following David's answer Martin vocalises "[hæɜ::]" (line 156) and David speaks again saying, "yeah it doh" (line 157), confessing now the answer he was previously reluctant to give.

7.3.1 Summary

It is a recurring feature of the conversation that David may treat Martin's actions with rich meaning, and in particular as initiating some rather risqué talk. In this way David orientates to Martin's vocalisations and non-verbal actions as a resource for the benefit of the conversation. This action reverses the tendency for vocalisations and non-verbal actions to take second pair parts. Rather cleverly, the precise nature of the risqué talk is never identified and it is the unintelligibility of Martin's actions that provides for the humorous realisation of innuendo. David works with these vocalisations and non-verbal actions to justify Martin as a co-participant in talk, and he also portrays Martin with particular competence in that he treats Martin's vocalisations as actions that place himself in an awkward or embarrassing situation.

7.4 Summary of analysis

As with each analysis chapter the central aims have been to examine the role of the speaking partner, the contribution of the VOCA to the conversation and how the interaction evolves when the VOCA is not used. The first section of analysis considered VOCA use. It is apparent that the VOCA is used relatively little. As was observed in the conversation between Jamal and Colin, it is David, the natural speaker, who organises the initiation of VOCA use and he does so explicitly through meta-interactional utterances. A common pattern of VOCA initiation was also observed with the realisation of a turn initial pause in which pre-beginning elements

of the VOCA turn are evident before the VOCA mediated utterance itself is produced. This pattern mirrors the sequence of events seen in Jamal and Tina's VOCA use and David invariably waits in silence as Martin works with this device in turn initiation.

In three of the four occasions that Martin generated a VOCA mediated turn he did so with a single word or letter. On one occasion he generated a two-part phrase. Most interestingly, Martin intentionally designed incomplete VOCA mediated utterances with the intention of generating considerable humour with some risqué, and rather 'laddish', intent. In this instance, limited VOCA use was not a failing and nor did it signal a lack of competence by Martin but it was used as a resource for humour. Martin displays an ability to adapt his VOCA mediated contributions to the conversation in light of the limitations of VOCA use. In addition he shows considerable skill in combining VOCA use, vocalisation and non-verbal action in message construction. In particular Martin's orientation to David in the period between the last VOCA generated bleep and the production of the VOCA utterance provides an opportunity to latch the VOCA and non-verbal elements of the utterance together unproblematically.

Having examined VOCA use the second section of analysis explored how the conversation was organised when the VOCA was not used. It is apparent that Martin displays considerable ability in the placement of his vocalisations and non-verbal actions with respect to David's turns. In this way Martin's actions take on a richer sense of collaborative orientation to and involvement with the talk in progress than might be conveyed through the use of basic affiliation or rejection moves. Martin also demonstrated how he may place vocalisations and non-verbal actions within David's turn in the anticipatory completion of the turn. It is evident also that David designs his turns in ways that allow for such alignment and the advancement of the talk as a product of both their actions. In contrast with the characterisation of children using communication aids as "passive" participants in interaction reported in the adult - child literature (e.g., Harris, 1982; Light, et. al. 1985a,b,c; Basil, 1992), Martin displays himself as an active co-participant in the interaction and the interaction advances as a product of both boys' actions.

Martin is observed to vocalise frequently during the conversation and it is evident that David may selectively treat such actions as relevant to the talk. Alternatively he may ignore them. Where David does orientate to such actions he has been observed to treat them with a rich sense of meaning, typically, inferring in them rather humorous and salacious intent. In this way David plays on Martin's unintelligibility for the benefit of the conversation. The humorous and rude innuendo brought about by these actions is based on the fact that Martin's actions are unintelligible and that the actual specific meaning should not be divulged, particularly within earshot of the video camera and the overhearing adult audience it represents. David has been observed to treat Martin's actions as a question and in so doing he contrasts the design of the question and answer elements in terms of volume, speed and pitch movement. David is also observed to treat Martin's vocalisations as questions that place himself in a superficially awkward or embarrassing position, in this way he conveys a particular type of competence onto David.

The analysis of the conversation between David and Martin is the last in the series of three case studies. In the next chapter the primary themes in analysis will be drawn together to reveal further how this thesis has illuminated new knowledge about conversational interaction between these children and to explore the clinical implications of these findings.

Chapter 8

8.0 Discussion

The aim of this thesis is to explore the nature of conversational interaction between non-speaking children with Cerebral Palsy using VOCAs and their naturally speaking peers. More specifically the thesis has considered a number of questions: How does VOCA use actually come about? How are VOCAs used and what difficulties might non-speaking children and their peers encounter in VOCA use? How do the participants organise the accomplishment of conversational interaction when the VOCA is not used? What is the role of the speaking partner in organising the interaction? Of the population of children with Cerebral Palsy who have very little or no functional speech, it is those who experience a discrepancy between their understanding of language and their ability to express themselves and who use VOCAs as their primary communication aid modality who have been the focus of investigation.

The relevance and importance of peer relationships for children's development has been recognised. However, to date, only very limited energies have been directed at exploring the nature of conversational interaction between peers in which one participant uses a communication aid (Clarke & Leech, 2003). Analysis of social interaction for children using communication aids has borrowed most strongly from methodologies used in the analysis of non-disabled, speaking children's interaction (e.g., Harris, 1982; Light et al., 1985a,b,c; Pennington & McConachie, 1999). While this body of research has proved valuable in highlighting the characteristics of such interaction and has informed families and Speech and Language Therapists about the broad style of partners' actions typical of these interactions, arguably this work has been unable to capture the subtle and complex ways in which conversational interaction is organised. This thesis aims to address these gaps in knowledge. In particular, as an analytically motivated study it aims to explore how naturally speaking partners orientate to the business of accomplishing conversational

interaction with a non-speaking partner with a physical disability, and how voice output communication aids are incorporated within and contribute to peer interaction.

These aims have been targeted through the detailed analysis of three individual cases using the principles and practices of Conversation Analysis. It is the nature of conversation analytic research that the detail of the findings and the presentation of the analysis are interdependent. While in the presentation of the analysis and findings it has been possible to compare some findings across the three conversations, the central concern of these chapters has been the analysis of interaction on a case-by-case basis. Therefore, this chapter aims to bring together and summarise the central themes identified across the three cases; examine the implications for speech and language therapy assessment and intervention for children using communication aids and their peers and review briefly the methodology used in this study. In examining the broader themes raised by this analysis the next section of discussion will reflect the organisation of the analysis chapters themselves. In the first instance discussion will focus on aspects of conversational interaction in which the VOCA is used, including: how VOCA use comes about; the characteristics of its use and problems encountered. Subsequently, the discussion will focus on the features in conversational organisation when the VOCA is not used and the children with Cerebral Palsy use vocalisations and non-verbal actions to contribute to the talk.

8.1 VOCA use

An interesting feature of the children's conversations concerns how non-speaking children actually come to make a VOCA mediated contribution to the conversation. Characteristic patterns in the introduction of VOCA use are evident across the three dyads. Commonly VOCA use takes place following first pair parts of adjacency pairs, typically designed as questions, that require VOCA use as the medium for the answer. Alternatively, it may be brought into use by a meta-interactional turn, that is, an explicit or implicit evocation of the state of the interaction that becomes a matter for the talk itself. Thus is it speaking partners who organise the initiation of much

VOCA use. It is evident also that VOCA use may be initiated unilaterally. However, one consequence of unilateral initiation is that such utterances are particularly vulnerable to problematic understanding and difficulties in their realisation (extract 9, page 127 and extract 14, page 163). VOCA mediated turns are characterised by significant turn initial pauses of variable length within which the aided speaker engages in pre-beginning aspects of the turn. VOCA mediated turns of greater than one unit are characterised by within turn pauses, again of variable length, and consequently the progressivity (Schegloff, 1979) of the turn is delayed.

8.1.1 VOCA use as a second pair part

VOCA use typically comes about following first pair parts of adjacency pairs. Most commonly the first pair parts take a question form. This feature of the interaction is particularly evident in Jamal and Colin's conversation and was observed also in Tina and Lucy's talk. These questions are designed in such a way that an answer can only be realised through VOCA use. For example, when talking about swimming Lucy asks, "who normally takes ya" (extract 11, line 034, page 151), and in talking about Jamal's learning support assistant Colin asks, "how old is Craig" (extract 4, line 209, page 90). An example of a first pair part in which the content of the VOCA answer is known in advance is seen in Colin's use of test questions, such as, "how many times have England won the world cup" (extract 1, line 027, page 80). This type of question makes relevant a relatively simple single word answer as an unequivocal, complete and relevant next turn and Colin has knowledge of its likely content. A similar example of this type of question is observed in the conversation between Tina and Lucy. When talking about the homework they had been given at the weekend and following on from Tina telling Lucy that she coloured a picture, Lucy asks, "what colours did you use" (extract 10, line 322, page 144). This question requires Lucy to use her VOCA in the next turn to provide a list from a predefined category. Like the majority of Jamal's answers, Tina's answers require little or no syntactic form in order to satisfy fully the demands of the question. Such questions provide for a predictable point of VOCA initiation, a predetermined function for that event, it will be an answer, and in some instances the likely theme or content of that

turn. In this way VOCA use was brought about within a strongly defined sequential location.

Speaking partners' frequent use of questions has been reported in the AAC literature concerned with communication aid use more generally. Most frequently in such reports questions that require minimal yes or no answers are described (Harris, 1982; Light et al., 1985a; Udwin & Yule, 1991; McConachie & Ciccognani, 1995; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999; Clarke & Leech, 2003). While this type of question is observed in the peer conversations reported in this thesis it is apparent also that speaking children orientate to the relevance of VOCA use in the conversation and ask questions that require VOCA use to provide an answer, albeit answers that require limited syntactic form.

It has also been noted in the adult - child literature that speaking partners may ask questions to which they already know the answer (von Tetzchner & Martinsen, 1996). With the exception of test questions, which are clearly a different type of exchange to that discussed in the literacture, this type of question was less obvious in these conversations. However, it was evident that speaking partners located VOCA use in a conversational context in which the category or theme of the turn may be hypothesised in advance. Thus speaking partners may not have precise prior knowledge of the exact content of the VOCA turn but will have access to the type of answer that may be produced.

8.1.2 Meta-interactional prompts for VOCA use

An intriguing way in which VOCA use came about, and one that reflects many of the features of interaction brought about in the use of questions, is through the use of meta-interactional turns. In such instances speaking children orientated verbally and through gesture to the VOCA as the expected medium of the non-speaking child's next turn. These types of meta-interactional turns are evident in the conversations between Jamal and Colin, and Martin and David.

The use of meta-interactional commands is common in Jamal and Colin's conversation where each of Jamal's turns at asking a question is preceded by Colin with a meta-interactional command. For example, turns such as "ask me a question" (extract 5, line 265, page 97), and "wu now you ask me a question about football" (extract 6, line 039, page 100), were evident. In these instances Colin makes explicit his expectation for Jamal to talk next and to use his VOCA for a very particular purpose. Consequently, Jamal's production of a first pair part is foreshadowed by a meta-interactional turn that makes relevant a particular type of VOCA mediated event. Interestingly, in asking Jamal to ask him a question Colin sets up a subsequent sequence of events beyond the next turn. Following a question an answer is due, which may in turn be followed by a third turn adjudication and subsequently a celebration. Some similar "prompts" to VOCA use have been reported in the analysis of adult – child interaction where communication aid use is cued in the next turn and for a particular purpose (Harris, 1982; Light et al., 1985c), although no evidence is reported concerning how such actions are realised and their impact on the interaction more fully.

In Martin and David's conversation VOCA use is preceded invariably by David's use of a meta-interactional turn (extracts 20-23), for example, with David saying, "go on you start" (extract 20, line 013, page 206), or "um anything more about that person" (extract 21 lines 160 and 162, page 211). In a similar way to the cues for VOCA use observed by adults in the conversations studied by Light and colleagues (1985c), David also physically prompted VOCA (e.g., extract 20, lines 013-022, page 206). Like Colin's use of meta-interactional commands, these actions unequivocally locate VOCA use as the next expectable event. However, unlike Colin's use of such turns and unlike those reported in the literature, David's meta-interactional prompts were less specific in the type of turn they project. Nevertheless, it is a recurring feature of the talk that it is David the speaking partner, not Martin, who allocates a structural location for VOCA use within the conversation.

As noted above, Light et. al. (1985c) observed the use of similar prompts in conversations between adults and children using communication aids and suggested that the children may not have used their communication aids during the interaction if use had not been prompted. It is perhaps unwise to speculate about the impact of

speaking partners' meta-interactional turns on the frequency of VOCA use in the conversations analysed in this research. However, it is notable that, like first pair parts of adjacency pairs observed in these conversations, meta-interactional turns make explicit the location of VOCA use within the conversation. Such actions may also make explicit the type of turn and possible broad category of subject matter realised in that turn. Interestingly, it is speaking partners who organise the introduction of VOCA use into the conversation.

8.1.3 Unilateral initiation of VOCA mediated contributions

In the conversation between Tina and Lucy close analysis of the sequence of actions in the initiation of VOCA mediated turns showed that only limited sequential opportunities exist for Tina to initiate such action, with her seemingly reliant on initiating VOCA use within lapses in the turn exchange. Importantly also, Lucy displays sensitivity to the possibilities of VOCA mediated turn initiation at these sequential locations and seeks to make public shared expectations for how the talk is developing at that moment. This is displayed through Lucy's use of questions such as, "ya gunna say something" (extract 14, line 179, page 165). Jamal is also observed to initiate VOCA mediated turns outside the sequential location of a prior first pair part or meta-interactional prompt. However, this occurs rarely (extract 9, page 127). Interestingly, when aided speakers initiate VOCA mediated turns unilaterally significant problems are encountered by both participants in understanding the content and intention of the turn. These problems are discussed below (section 8.1.6, page 254).

8.1.4 Turn initial pauses and pre-beginning elements of VOCA contributions

It is evident that in the initiation of VOCA mediated turns each utterance is characterised by the realisation of a significant turn initial pause (Sacks et al., 1974). During this time VOCA users engage in operational aspects of VOCA use as shown by features such as their physical orientation to the device, switch activation, and the presence of VOCA generated bleeps. Within speaking partners' conversation the presence of such pauses or silences are indicative of a dispreferred turn shape

(Atkinson & Drew, 1979; Levinson, 1983; Sacks, 1987) suggesting that the subsequent turn may not align with the prior turn. Interestingly, in the conversations analysed in this thesis the realisation of turn initial pauses subsequent to questions and meta-interactional turns are not, typically, orientated to as problematic by speaking partners. It is possible that in this context the pre-beginning elements of the turn provide sufficient evidence of the likelihood that a VOCA mediated turn is forthcoming to suggest the relevance of the speaking partner waiting in silence at least until the first element of the VOCA utterance is produced. In this context the VOCA generated bleeps are a useful auditory signal for the VOCA user and the speaking partner. However, in the case of ongoing scanning bleeps seen in Tina's VOCA use, the bleeps may not match the activity of the interaction at any one time. For example, they may be sounding at a time in which she is not engaged in utterance production. As such their relevance for the talk as potential signals of VOCA use is weakened. It would seem that a further potential outcome of the use of questions and meta-interactional turns by speaking partners is that they appear to allow for the unproblematic realisation of a turn initial pause before the start of the turn.

However, this is not exclusively the case. In the conversation between Jamal and Colin, Colin was observed to enter the turn initial pause subsequent to a command to provide a candidate answer (extract 3, page 88). Similarly, Lucy was observed to enter the turn initial pause following a question to reformulate the initial question. Typically she does this by providing a candidate answer and consequently a new opportunity for Tina to take a subsequent turn using non-verbal actions to accept or reject the candidate, (extract 15, page 179 and extract 16, page 181).

Lucy is also observed to enter the turn initial pause of a unilaterally initiated VOCA turn and in so doing she steers the conversation away from the previously agreed course of action (extract 13, page 158). So, having made public her understanding that Tina is engaged in a VOCA mediated turn she goes on to enter the turn initial pause on three occasions. In the first instance she asks a question, "did you have a good weekend as well" (line 077), that may be answered without necessarily diverting Tina from her current course of action. On the second occasion she asks a further question, "what did you do at the weekend" (line 082), and subsequently

proposes a strategy by which her question may be answered by saying, "shall I say some words and you stop me" (line 087).

Lucy's actions in entering the turn initial pause reflect reported findings from the adult – child literature (Harris, 1982; Light et al., 1985a; von Tetzchner & Martinsen, 1996). In these cases the reformation of questions into a series of closed question options is viewed to be a consequence of adults' push to increase the speed of interaction and as an orientation to limited vocabulary options available through the communication aid. For Tina and Lucy it appears that Lucy's reformations of prior questions are designed to steer the interaction away from VOCA use by altering the initial questions answerability. This feature of conversational organisation provides an opportunity to progress the talk more quickly than would be expected through a VOCA mediated response and provides an interactional space in which Tina's non-verbal contribution to the talk will be understood unequivocally.

It has been observed frequently in the AAC literature that VOCA use is a slower medium of communication than natural speech and that conversations involving communication aids in general require the participants to orientate to a different, slower temporal character of interaction (Sweidel, 1991; Beukelman & Mirenda, 1992; Robillard, 1994; Higginbotham & Wilkins, 1999). It is recognised also that communication aid use in interaction is not slow in a regular sense but is characterised by fluctuating "rhythm" (Light et al., 1985a). Synonymous with the issue of time and timing in conversation is the issue of silence. Silence is a feature of conversation that is actively orientated to by participants. For instance, participants' orientation to regularities of turn taking practice are concerned, in part, with minimising silence at points of turn exchange (Sacks et al., 1974). It is suggested also that the difficulties experienced by speaking partners in re-orientating to the temporal character of communication aid mediated interaction has consequences for the ways in which the interaction is organised. As noted above, a typical response to this issue involves adults asking questions that may be answered with minimal and non-verbal actions, and therefore relatively quickly.

Significantly, in the conversations analysed here, it is apparent that not all silences are problematic, and some have structurally defined locations in the talk. That is not

to say that issues of time and timing are not problematic for these conversationalists, but that careful attention to the sequential organisations of participants' actions within and between turns can reveal detail of analytical and clinical relevance. Indeed, this type of detail responds directly to the observation by Higginbotham, Mathy-Laikko and Yoder (1988), reported above, that without detailed understanding of within turn actions, best clinical intervention is undermined.

8.1.5 Delayed progressivity and the permeability of VOCA mediated contributions

Time spent generating VOCA mediated utterances varied within and between dyads. It is possible that the observed variety in length of turn evident in VOCA use may be explained by differences in method of access between children. It is generally understood that indirect methods of device access, like that used by Tina, are slower than direct forms of access, used by Jamal and Martin. In addition, variation in the time taken in VOCA use is, in part, a consequence of alternative forms used in VOCA mediated message construction. These include the use of full sentential structures seen in Jamal's VOCA use, for example, glossed here as, "***how many times has Mexico won***" (extract 6, lines 048-078, page 100/1). Tina's VOCA use provides examples of the use of single words, for example, "***picture***" (extract 12, line 311, page 155). Martin uses single words and is seen to combine these with non-verbal actions, for example, saying, "***Daphne***", followed immediately by smiling raisings up out of his seat and looking up, rising his eyebrows and generating an exaggerated vocalisation (extract 20, lines 026 – 030, page 206). The use of single letters has also been observed, for example Martin's use of "***f***" (extract 21, line 172, page 211). VOCA mediated utterances were also produced letter by letter as well as word by word.

It is clear that the realisation of VOCA mediated utterances is unlike the use of spoken utterances. VOCA mediated utterances are characterised by multiple within turn pauses of variable length and as such they lack the progressivity (Schegloff, 1979) of spoken turns. Speaking partners were observed to orientate to these pauses as opportunities to speak, and as such VOCA mediated turns may be characterised

by their permeability. In each conversation the speaking partner orientated to this permeability in different ways. In Jamal and Colin's conversation Colin frequently entered Jamal's turn in progress to project elements of the turn underway or its completion (e.g., extract 6, page 100). Although it was apparent that, on occasion, Colin designed these entries with the possibility that they may be employed to progress the turn, this was not always the case. Invariably Jamal responded to Colin's turn entry by disregarding Colin's actions and continuing with turn development.

In the conversation between Tina and Lucy, Lucy was observed to enter Tina's turn in progress to repeat and combine VOCA mediated elements of the turn and in so doing provide a public receipt of her understanding of the utterance so far and a more up to date temporal alignment between elements of the turn (extract 10, page 143). This activity is analogous with the point-speak strategy described in the use of low-tech communication charts (Higginbotham, 1989), whereby the speaking participant provides a receipt of each new element of the communication aid mediated utterance as it is produced.

On one occasion in the conversation between Martin and David, David enters the turn in progress to comment on activities outside the room (extract 23, page 216). Here Martin displays an ability to receipt this comment, looking in the direction of the door and then orientate directly back to his VOCA and the business of utterance production.

It is notable that within turn pauses are orientated to differently to turn initial pauses. It is apparent also that the status of within turn pauses varies. For example, within Jamal and Colin's conversation pauses subsequent to Colin's turn entry become less susceptible to further entry, at least until the accuracy of the entry has been established through Jamal's continued VOCA mediated turn construction. New elements of the VOCA mediated turn that have been foreshadowed by Colin's turn entry possess a different type of status. They project backwards, in clarification of the entry, as well as taking the momentum of the turn forward. Pauses subsequent to a continuation or completion entry, then, present a reduced "opportunity space" (in the words of Lerner 1991) for further entry.

Features of interaction such as guessing ahead at elements of the turn underway (Kraat, 1985; Brekke & von Tetzchner, 2003) or receipting elements of the turn in progress (Kraat, 1985; Higginbotham, 1989; Brekke & von Tetzchner, 2003), have been noted in the adult – child literature, and it would seem that child peers orientate to the delayed progressivity of VOCA use in a similar way to adults. It is notable here that the speaking children each adopted different forms of orientation to VOCA use. The impact of partner variation of interaction style is recognised more broadly (Kraat, 1985; Linell & Luckmann, 1991). Indeed, it is possible that any number of variables may impact on how speaking partners and VOCA users orientate to VOCA utterance construction. As a consequence clinical intervention may seek to consider the strengths, weaknesses and participants' preferences with respect to issues such as VOCA turn permeability on a specific case-by-case basis rather than seeking strategies that may be applicable across conversations. Such clinical implications are discussed in greater detail below (section 8.5, page 271).

One specific and rather intriguing feature of interaction in which delayed progessivity provides a resource for the elaboration of VOCA mediated turns is observed in Martin and David's conversation. In particular this concerns Martin's orientation to David in the moments between the final VOCA generated bleep of this utterance and the production of VOCA speech (extract 20, page 206 and extract 21, page 211). By being able to turn to David in the moments before the VOCA speech is produced he is able to latch non-verbal actions and vocalisations to the production of the VOCA speech. In this way he combines communication modalities to develop his turn in the form of a topic introduced by the VOCA and developed non-verbally. The key issue here is that the pause between the final symbol activation, indicated by the last bleep before VOCA speech, and the production of the VOCA speech itself is long enough for Martin to turn to David. Therefore the production of the VOCA speech and Martin's gaze towards David are complimentary. Here then delays in VOCA operation may provide a resource for the VOCA user. This observation contrasts with the dominant view reported in the communication aid literature that the slowness of communication aid use is a problem for interaction, and that operational delays intrinsic to VOCA design are problematic (e.g., Higginbotham & Wilkins, 1999). It is possible that at very specific locations within the talk slowness

is less problematic than previously perceived and again it would seem that not all silences have equal and status. Indeed, in this situation the delay provides a resource for combining VOCA use with vocalisations and non-verbal action in a syntagmatic relationship.

8.1.6 Problems in VOCA use

Problems have been identified in VOCA use within these conversations. Essentially these have centred in speaking children's difficulties in identifying the TRP of VOCA mediated turns and in understanding the content and intention of VOCA turns initiated unilaterally.

In conversation between naturally speaking adults it is evident that listeners orientate to the talk in progress as a mechanism for knowing when to speak next and what type of next action is relevant. Equally, turns at talk are designed to signal the type of turn underway and what it might take to finish (Sacks et al., 1974). Resources used in the projection and delineation of the turns include for example, syntax (Sacks et al., 1974), phonetic features such as pitch, tempo and loudness (Local & Kelly, 1986; Wells & Peppe, 1996), and pragmatic cues (Ford & Thompson, 1996). VOCA mediated utterances lack many of these aspects of speech and this fact, combined with the significantly delayed progressivity of the turn means that, in particular, the TRP may be misjudged. Here then delayed progressivity provides a source of problems in VOCA use. For example, Colin displays early orientation to a possible TRP on a number of occasions (extract 7, page 110 and extract 9, page 127), and uncertainty concerning the location of the TRP was observed in the conversation between Tina and Lucy. In this instance Lucy orientated publicly to the possibility that Tina's turn had reached a TRP (see extract 10, page 143), pursuing this possibility over several turns. Such actions took the form of questions such as "is that all" (line 362) and "or you got more" (line 364), and provide clear evidence for the lack of projectability in VOCA mediated utterances. In these episodes of VOCA use speaking partners experience some difficulty in orientating to one of the very basic activities of listeners, that is, knowing when to speak next. There is some suggestion that this issue is a broader concern for communication aid use in general

(Kraat, 1985; Brekke & von Tetzchner, 2003), although little detail has been presented concerning how these difficulties are manifested in interaction.

It is evident also that the non-speaking participants revealed specific strategies for signalling the TRP of the turn. This was clearly evident in Jamal and Martin's VOCA use and concerned physically orientating away from the VOCA, moving out of possible speakership, and turning towards their co-participant. This action was particularly relevant for Martin who invariably generated incomplete VOCA mediated utterances in the pursuit of humour (e.g., extract 20, page 206).

Jamal and Tina are also seen to initiate VOCA use unilaterally. However, in these instances such turns regularly invoke difficulties in the development and understanding of the turn for the speaking partner. An example of such difficulties is observed when Jamal initiates talk beyond the question and answer exchanges typical of this conversation with Colin (extract 9, page 127). In this instance Colin asks Jamal to sing a song using his VOCA. Jamal replies that he cannot, but before completing his turn Colin enters the turn at a possible TRP and provides a further request saying, "put a different song on there" (line 576). Jamal goes on to complete his turn and then, rather than orientating to Colin's request for a new song, he initiates a new line of talk. However, it becomes apparent that Colin it not orientating to the talk as something new but as a response to his request. What Colin anticipates Jamal to be doing is not the activity in which Jamal is engaged. Consequently, the boys lose their shared understanding for how the conversation is progressing.

Furthermore, Colin was unable to distinguish between the interactional work of self-initiated self repair (Schegloff et al., 1977) and the continued construction of Jamal's turn (extract 8, page 118 and extract 9, page 127). Colin displays publicly the difficulty he was experiencing in monitoring and understanding the turn in progress. This includes how the elements of the turn relate to each other and how they might relate to the immediately prior talk. In VOCA use, Jamal did not have available resources to signal that he was initiating a new turn and conducting a self-repair within that turn. Furthermore, the delayed progressivity of his VOCA mediated turn meant that this situation was sustained until the repair outcome was signalled in the production of the full and final utterance.

Interestingly, Martin displays an effective strategy for signalling a self-initiated self repair (extract 21, page 211). Immediately after the VOCA mediated error Martin signals its deletion and replacement by the next VOCA mediated element by remaining seated but glancing up and then looking back at the VOCA interface and continuing with its operation (line 167). Importantly, David shows sensitivity to the intended meaning of these actions. In this way Martin initiates a self repair at the most relevant sequential point in the utterance to signal this type of interactional work, that is, immediately after the trouble source, and the immediacy of this action is provided by the use of non-verbal action.

The use of technology by people with and without disabilities is subject to frequent and recurring error. Indeed, it is likely that the reader need look no further than his or her own experience in computer use for evidence of such difficulties. For children with physical disabilities who experience significant difficulty in organising and executing physical movement, and who strive to use VOCAs successfully within the temporal demands of conversational interaction, the likelihood that errors will occur in VOCA use are significant. It is evident that within Jamal and Colin's conversation this was a source of some difficulties, in Martin and David's conversation Martin demonstrates an effective way of signalling errors in VOCA use.

On two of the three occasions when Tina was able to initiate unilaterally a new turn, significant difficulties were encountered in their production. Interestingly, a similar type of problem to that encountered by Jamal and Colin is observed. In one instance Tina generates the single word "***green***" (extract 14, line 208, page 165). Here Lucy displays her orientation to the sequentiality of conversation in treating "***green***" as relevant to the immediately prior talk and therefore a contribution of new information about what she did that weekend. In using this "interpretive framework" (Goodwin, 1995), Lucy experiences difficulty understanding the relationship between elements within the turn as they emerge and therefore the full intended meaning of the utterance. Lucy treats "***green***" as an adjective and the missing aspect of the utterance as a noun phrase. When Tina then generates the letter "***s***" (line 221), which, with hindsight, Tina intends to alter "***green***" to "***greens***" and therefore signal its intended form as a noun rather than an adjective, Lucy fails to incorporate this

new letter into her attempts to guess at Tina's intended meaning. Tina seeks to remedy the misunderstanding by using the next VOCA utterance to cue Lucy into the conversational context to which her utterance is relevant. In producing "***dinner***" (line 253) next she evokes the previous sequence in which Lucy guessed what Tina had for dinner as the sequence to which her utterance is related. Again Lucy's difficulty in marrying the elements of the turn so far is evident in her exaggerated use of pitch movement in her formulation of the turn so far saying, "gr↑een ↑din↓ner" (line 257). Eventually, however, she does recognise the sequential context to which Tina's actions are related. Tina displays creative uses of the VOCA and considerable strategic competence (Light, 1989) in use of a single referent to do essential interactional work. Indeed, it was not until this point that Lucy shows understanding of the intended content and function of the utterance.

Similar difficulties in identifying the meaning of utterances have been observed in conversations between naturally speaking adults and adults with Cerebral Palsy using communication aids (Collins, 1996), adults with progressive conditions using VOCAs (Bloch & Wilkinson, in press), and aphasic adults (Wilkinson, 1999). Collins (1996) and Bloch and Wilkinson (in press) have revealed how speaking participants may struggle to make sense of the relationship between elements of VOCA mediated turns, and that critical to the resolution of these problems is an understanding of how these elements relate to the prior talk. One dyad examined by Bloch and Wilkinson showed that problems arose, in part, because the aided participant initiated an unexpected topic shift. In this instance the authors assert that although an intelligible VOCA mediated utterance was developed the co-participants understanding of the intended message is not a guaranteed outcome of VOCA use.

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Central to the conversational difficulties encountered by participants in Collins' study was the fact that the speaking participant treated the aided participant's turn as new information when it was intended as an answer to a question. Collins also shows how adult aided speakers may generate noun phrases to display the link between the current turn and the prior talk. It is just this type of skill that Tina displays in producing the word "***dinner***". Interestingly, in an exploration of interaction between aphasic adults in conversation with Speech and Language Therapists, Wilkinson

(1999) identified similar difficulties to those experienced by Tina and Lucy. That is, the Speech and Language Therapist misconstrued the relationship between the aphasic adult's utterance and the prior talk, treating the aphasic adult's utterance as an answer to a question when it was intended as an other initiated other repair. This uncertainty and the unintelligibility of the spoken utterance made it difficult for the Speech and Language Therapist to make out the function of the word and its form. These problems also reflect the experience of Albert Robillard, a communication aid user himself. Robillard (1994) expresses clearly the difficulty, time and effort experienced in using a communication aid to return to prior talk and introduce issues that refer to events that are out of the immediate conversational context.

Again, it would seem then that one advantage of locating VOCA use as the answer to a question or as a turn subsequent to a meta-interactional command is that the speaking partner can expect the VOCA mediated utterance to align with the prior turn. In this way the sequential context in which the VOCA mediated turn is developed provides a resource for uncertainties or problems in the "understandability" of the VOCA mediated utterance to be resolved.

It is notable that increasing the frequency with which aided speakers initiate and develop turns using their communication aids is a common goal in published intervention studies (Glennen & Calculator, 1985; Hunt et al., 1985; Angelo & Goldstein, 1990; Hunt et al., 1990; Buzolich et al., 1991; Hunt et al., 1991b; Buzolich & Lunger, 1995). However, the simple desire to encourage initiation introduces other pervasive difficulties that children using communication aids and their partners are likely to encounter, in particular how the sequentiality of conversational interaction may work against the successful use of unilaterally initiated VOCA mediated turns. Future intervention concerned with increasing the frequency of aided speakers' initiation will benefit from considering in some detail exactly what this might mean and involve for both partners beyond specific vocabulary items for initiating talk or opening a topic.

Having considered the broad themes concerned with VOCA use observed across the case studies the discussion will now consider the themes observed in episodes of conversation in which VOCAs were not used.

8.2 Children's use of unintelligible vocalisations and non-verbal actions

8.2.1 Vocalisations and non-verbal actions

It is commonly observed that children using communication aids contribute to interaction through non-verbal actions and for some this is a preferred modality (Harris, 1982; Light et al., 1985b). Non-verbal actions are often used as methods of responding to speaking partners' turns which typically are designed as questions (Harris, 1982; Light et al., 1985c; Udwin & Yule, 1991; McConachie & Ciccognani, 1995; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999). In adopting such roles children using communication aids are often categorised as passive or dependent communicators (Basil, 1992; von Tetzchner & Martinsen, 1996) and intervention may be concerned with increasing adults' sensitivity and adaptability to children's non-verbal actions (Light et al., 1985a; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999). In the context of the conversations studied in this thesis the terms, vocalisation and non-verbal action have been used to describe a relatively limited array of actions. Vocalisations have most typically been realised as vowels and indistinct consonants, the only other obvious vocal contribution to the interaction being laughter. In each of the conversations the aided participants' non-verbal actions have been limited to facial expression such as smiling and eyebrow raising, head turning, head nodding and shaking, or vertical movement of the trunk shoulders and head. Although limited in the variety and range of movements available, aided speakers and their partners have used non-verbal actions in a range of creative and interactive ways.

Aided speakers' use of vocalisations and non-verbal actions were observed in each of the conversations. For example, Jamal is observed to generate a short laugh and a vocalisation in advance of a VOCA mediated joke (extract 4, page 90). In this way he uses laughter and vocalisation to signal in advance something of the nature of the turn he is producing. Jamal also uses physical head movement to signal the beginning and end of this VOCA mediated turns. Jamal did not use head nods or shakes to signal "yes" or "no" when this might have presented a quicker way of

responding to Colin. In contrast, head nods and shakes were used a great deal by Tina in her conversation with Lucy. For a significant proportion of the conversation Tina used these non-verbal actions to answer Lucy's questions and accept or reject candidate answers.

In Martin and David's conversation Martin contributed predominantly to the interaction through vocalisations and non-verbal actions. For example, as discussed earlier, Martin combined VOCA use with vocalisation and non-verbal actions to provide rather risqué and 'laddish' contributions to the talk. He also displayed significant skill in his sequential placement of vocalisation with respect to David's turns to signal his alignment with, and appreciation of, David's talk.

8.2.2 Signalling "yes" and "no"

In the conversation between Tina and Lucy, significant periods of the interaction are conducted through recurrent sequences of turn exchanges in which Lucy poses questions or provides candidate answers in pursuit of a particular target(s) (extracts 17-19). Here, Tina provides minimal next turn responses, communicated non-verbally, confirming or rejecting the prior turn. This observation echoes observations made of interaction between children using communication aids and adults whereby children generate "yes" or "no" responses, communicated through gestures, in response to adults' questions (Harris, 1982; Light et al., 1985a,b; Udwin & Yule, 1991; McConachie & Ciccognani, 1995; von Tetzchner & Martinsen, 1996; Pennington & McConachie, 1999). Similar exchanges have also been observed in the conversational interaction of aphasic speakers and in particular in Goodwin's analysis of request sequences by an aphasic speaker (Goodwin, 1995).

Notably, single words like "yes" and "no" are typically realised as second pair part responses to prior turns (Sacks & Schegloff, 1973; Sacks et al., 1974; Schegloff, 1996). Such actions become meaningful contributions to interaction by their placement with respect to other participants' talk, that is, by being embedded within the talk of others (Goodwin, 1995; Goodwin, 2002). For example, in the conversation between Tina and Lucy, Lucy engages in trying to guess what Tina did at the weekend, offering candidates such as "um: did you do (0.5) Colouring"

(extract 17, line 091, page 183), and "did you er do: Go out" (line 094). It is notable that the status of Tina's non-verbal actions varies according to the type of activity underway. In this exchange the status of Tina's non-verbal answers do not impact on the type of turn that comes next. So that regardless of whether she generates a nod in affirmation or shake of her head in rejection, Lucy's next turn is concerned invariably with offering a new candidate answer. However, in other instances of similar sequences, for example, within an exchange aimed at identifying what Tina had for dinner (extract 18, page 189), an affirmation of a candidate closes or restricts that category of foodstuffs as the image of the meal is produced. In both these instances, despite Tina's limited contributions to the interaction in terms of turn content, she is located as the "focal participant" (Goodwin, 1995) of the talk. A structural outcome of this way of organising interaction is that participants' roles and therefore their contribution to the talk is unambiguous. For the duration of any episode taking one of these formats, the distribution of turns and turn types between the two participants is established. Realising one of these exchanges is a resource open to the participants, one which 'buys' the participants an episode of interaction in which the rights of each participant to the conversational floor are unambiguous, and turn transition is managed smoothly.

An outcome of organising the interaction in this way is that Tina may only be required to generate small and subtle head movements in order to fulfil her turn. In addition, Tina's head movements conducted in the answer slot may be treated as a signalling "yes" or "no" despite the presence of other simultaneous actions such as switch activation. In this way such sequences restrict the opportunities for Tina to initiate VOCA use but some possible advantages are provided by the structure of the talk. The type of sequence in which a "yes" or "no" response is expected from Tina provides an opportunity for her to alter the nature of her non-verbal responses to signal something other than the expected "yes" or "no". For instance, on one occasion she achieves this by holding her head still and fixing her gaze on Lucy (extract 18, page 189). Importantly, Lucy displays awareness of the possibility that this action is signalling something other than an affirmation, rejection or no response, showing significant sensitivity and responsiveness to interactional possibilities signalled in Tina's non-verbal actions. This is a feature of speaking

partners' actions that is often claimed as limited or missing in adults (Calculator & Dollaghan, 1982; Light et al., 1985a; Basil, 1992; Pennington & McConachie, 1999).

Interestingly, it is Lucy who organises the conversation such that Tina may make meaningful non-verbal contributions to the talk. In these instances it is Lucy's thoughtfully designed questions and candidate answers that provide for Tina's inclusion as an active and focal participant in the conversation. Indeed, she is observed to reformulate questions that require VOCA use in order that these might be answered appropriately through non-verbal actions. This reformation is achieved through the provision of a candidate answer to the original question. In this way she manipulates the answerability of the question, essentially making it easier and quicker for Tina to take the next turn.

8.2.3 The start and end of VOCA mediated turns

It was noted earlier that one way of signalling the TRP of a VOCA mediated turn involves the VOCA user in physically orientating away from the device. This feature of VOCA use was particularly evident in Jamal and Colin's and Martin and David's conversations. In these conversations head movements and body position were used to signal the beginning as well as the ends of VOCA mediated turns. This feature of VOCA use was less evident in Tina and Lucy's conversation. The significance of this phenomenon in Jamal and Martin's VOCA use may have been a function of the fact that the boys were sitting side by side with their peers. In contrast Tina and Lucy sat opposite each other. As a consequence it was difficult at times to distinguish whether Tina was looking at her VOCA or at Lucy. Furthermore it was apparent that in using an automatic switch scanning method in accessing her device the distinction between VOCA use concerned with utterance production and other operational aspects of VOCA use or no VOCA use was less distinct.

Although physical movement out of speakership was a regular feature of Jamal's VOCA use, Colin did not obviously orientate to these movements as signalling the TRP as evidenced, in part, by Colin's early location of the TRP within Jamal's turns. For Martin, as noted earlier, an ability to control physical movement out of

speakership was put to good effect. In orientating towards David in the moments before the VOCA generated utterance he is able to latch exaggerated non-verbal actions onto the VOCA generated utterance to elaborate on the intended meaning of the VOCA speech.

8.2.4 Sequential placement of vocalisations and non-verbal actions

It was noted above that Jamal was observed to generate laughter in overlap with VOCA orientated actions in order to signal the type of turn underway, also that Martin is observed to place exaggerated vocalisations and non-verbal actions immediately subsequent to VOCA utterances in order to elaborate on their meaning. It has been noted also that Tina adopts a strategy of not generating an expected "yes" or "no" type action in the answer slot in order to signal some form of problem with the prior turn. In each of these instances the aided speakers located specific types of vocalisation and/or non-verbal action at specific locations within the sequence of events to achieve particular types of interactive work. In this way aided speakers' sequential placement of vocalisations and non-verbal actions determines how they will be understood with respect to the talk in progress.

Across the three dyads it was Martin who displayed most skill in the placement of unintelligible vocalisations and non-verbal actions with respect to the ongoing talk. Throughout his conversation Martin generates a great number of non-verbal actions and vocalisations. However rather than displaying himself as a passive recipient of David's actions he is active in sequentially aligning and manipulating vocalisations through exaggerating pitch movement and generating elongated vocalisations to display understanding and appreciation of the prior turn. It is the nature of David's turns that provide the interactional opportunity for Martin to use vocalisation in this way. Indeed, on one occasion Martin is seen to build non-verbal action into David's turn in progress to complete the turn non-verbally (extract 24, lines 113 – 115, page 220). In this instance the boys are talking about Daphne the learning support assistant and David is offering a number of assessments, glossed her as "she's got a nice legs un that init" (line 106), "nice bum" (line 109). David begins a new assessment saying "nice", Martin then vocalises, looks down at his lap and back up to David and on making eye contact again vocalises for a second time (line 114).

David treats these actions as meaningful and shows alignment with them saying, "yeah" (line 115). In these examples the non-speaking participant displays significant competence in using non-verbal action to take a role as an active participant.

The sequential placement of the participants' eye-gaze and moments of eye contact also appear to impact on the subsequent talk. For example, as discussed above, in Martin's combined use of his VOCA, vocalisation and non-verbal actions he is observed to secure David's eye-gaze before initiating the exaggerated vocalisation and vertical extended movement of his trunk and head (extracts 20, page 206 and 21, page 211). Here Martin secures David's eye-gaze before the VOCA generated utterance and in so doing ensures that the vocalisations and non-verbal actions are seeable as linked to the VOCA talk.

A further interesting example of the placement of eye-gaze, and in this instance a subsequent smile, is seen in Tina and Lucy's conversation. In this instance Lucy orientates to a moment of shared eye-gaze and Tina's slight eyebrow raise and initiation of a smile to treat the fairly mundane discovery that Tina watched television at the weekend as representing a major achievement, and an enviable activity (extract 19, page 193). The subsequent exchange of turns builds on this initial treatment and thus implicitly portraying Tina with noteworthy competence. In turn Tina aligns with this treatment with smiles and laughter. In this instance it is the location of the shared eye-gaze, Tina's raising of her eyebrows and the subsequent smile that provide the impetus for Lucy's treatment of the television watching as "°having a right good scam°" (line 409) and Tina as a "°lucky bugger° hfh" (line 447).

8.3 Humour

Within the analysis and again here in the discussion mention has been made of the children's generation of humour. For example, in Jamal and Colin's conversation Colin treats an incomplete VOCA mediated turn as signalling a joke. In this instance Jamal is answering the question "how old is Craig" (extract 4, page 90). Craig is

Jamal's Learning Support Assistant. The delayed progressivity (Schegloff, 1979) of Jamal's answer and the idiosyncratic way in which Jamal produces numbers mean that in generating the answer, which is 24, Jamal produces the single word "***two***" (line 210) and a pause emerges in the turn before the next element "***four***" (line 219). Colin deliberately treats with humour the possibility that the word "***two***" signals the TRP of the turn. Later within this same question and answer exchange Jamal goes on to use his VOCA to make a joke, claiming that Craig is "***two hundred and eighty four***" (line 249).

For Tina and Lucy the generation of humour is evident in the exchange in which Lucy treats the discovery that Tina watched television at the weekend as a "scam" (extract 19, line 409, page 193). In this instance Lucy recycles the humour on several occasions using terms such as "were ya" (line 417), "I bet you was" (line 424) and "was ya" (line 247).

For Martin and David the vast majority of their conversation was built on the production of humour based around the boys' expressed shared desires for Daphne, a Learning Support Assistant in school. A notable element of Martin's contribution to the humour is in its realisation through deliberately incomplete VOCA mediated utterances, which might also be combined with vocalisation and non-verbal actions, to infer naughty and humorous talk. A significant example of this is seen in his production of the single letter "***f***", in combination with vocalisation and exaggerated non-verbal physical action in extending up in his chair and looking up (extract 21, lines 172 and 174, page 211). In this way he circumvents the delayed progressivity of VOCA mediated utterances to great effect by producing a minimal turn that infers rudeness and humour.

David's talk in general tends to revolve around discussing humorous and risqué aspects of the boys' relationship with Daphne. Interestingly, he orientates to the unintelligibility of Martin's vocalisations as a resource to infer a rich sense of meaning in Martin's actions and typically again as signalling humorous and rude aspects of the boys' relationship with Daphne. This aspect of the boys' talk is discussed in greater detail below.

The analysis has been able to show that humour is present in these peer interactions and how it is accomplished. Interestingly, the realisation of humour is often achieved through a direct or indirect orientation to aspects of the aided speakers' communication disability and the atypical nature of the interaction. For example, through delayed progressivety in the VOCA mediated turn or participants' unintelligibility. As such this humour provides an insight into the children's relationships as peers and the meaning of disability for non-speaking children with Cerebral Palsy who use VOCAs. If disability is understood, in part at least, to represent barriers to participation in everyday life including social relationships then in these moments of shared humour the children display how, by orientating directly to the nature of the disability, its impact as a barrier to participation is reduced. That is, the nature of the communication disability becomes a resource through which humour is generated. Importantly, within these peer relationships aided speakers are not the butt of the humour but collaborative partners in it and through it portrayed with significant competence.

8.4 Communicative competence

Speech and Language Therapists' assessment and intervention practice with children using communication aids has been influenced by a model of communicative competence proposed by Janice Light (1989). This model conceptualises competence as a dynamic context specific construct in which aided speakers' competence may be understood in terms of knowledge, skills and judgment in four areas: linguistic skills, operational skills, social skills and strategic skills. Light also proposes that effective intervention planning may be supported by considering aided speakers' broader agendas for interaction. Light (1988) proposes four rationales served by communication are the communication of wants and needs, information transfer, social closeness and social etiquette.

Although CA is not intended as a methodology with which analysts seek to make value judgments about the quality of interaction or particular participants' actions, this method can provide insight into participants' resources and competences in interaction (Hutchby & Moran-Ellis, 1998), that is, resources that the participants

themselves orientate to as relevant. For example, Jamal displays significant competence in using his VOCA to generate complex sentences. Indeed, he persists in this endeavour despite opportunities to realise aspects of his turns through confirmation of Colin's turn entries. An example of Tina's competence in conversation is seen in her ability to initiate VOCA mediated turns despite limited opportunities to do so (extracts 12,13 and 14). Also, when Lucy struggled to understand the meaning of Tina's VOCA turn "***green***" (extract 14, line 208, page 165), Tina shows a strategic use of her communication aid to cue Lucy into the sequential context to which her utterance is related by generating the word "***dinner***" (line 253). She also demonstrated competence in the use of non-verbal actions within question/candidate answer – response exchanges, for instance, holding her head still and looking at Lucy to signal that she was experiencing some form of difficulty with the question (extract 18, page 189). Further examples of the aided speakers' competence were seen in the conversation between Martin and David. As noted above, in that conversation Martin displayed considerable skill in deliberately generating incomplete VOCA mediated utterances and on occasion combining these with non-verbal actions and vocalisations to initiate humorous and rude talk (extracts 20, 21, 22 and 23). Again, as noted earlier, he also showed competence in the placement of vocalisation and non-verbal actions with respect to David's turns to display his understanding and appreciation of David's actions, and to share the responsibility for generating rude talk (extract 24, page 220).

It may be tempting to consider such skills in terms of categories of behaviour defined by Light (1989) and it is possible to speculate which observed behaviours belong in which skill category. For instance, Jamal's ability to produce VOCA mediated sentences might be located within the category of linguistic competence. Tina's ability to initiate VOCA mediated turns within lapses in turn taking might be categorised as strategic competence, as might Martin's deliberate use of minimal VOCA turns in the realisation of humour. Indeed, while such matching of action to skill area might be possible, such categorisation removes these observations from the interactive context in which they are realised and as such eliminates the contribution of the speaking partner from the accomplishment of aided speakers' competence. For example, most commonly, Jamal produced full grammatical sentences following Colin's meta-interactional commands for Jamal to ask a question. Tina's initiation of

VOCA mediated turns is, in part at least, related to Lucy's sensitivity and responsiveness to Tina's VOCA orientated actions within lapses in turn taking. Martin's use of minimal VOCA turns combined with vocalisations and non-verbal actions was achieved in part because David treated these actions as relating to a shared aspect of the boys' knowledge.

The naturally speaking participants displayed other actions that may be described as competences in supporting and developing the conversation. For example, as noted earlier in the discussion concerning the use of vocalisations and non-verbal actions, speaking participants may orientate to their co-participants limited communication resources by designing their turns so that their partner can take a full and effective next turn non-verbally. This feature of interaction is observed most clearly in Lucy's use of questions and candidate answers, and the reformation of open questions with candidate answers making it possible for Tina to respond in the next turn with a nod or shake of her head in affirmation or rejection of the prior turn.

It is a notable finding that speaking partners may imbue their non-speaking partners' actions with a rich sense of meaning and therefore the non-speaking participant with a degree of interactional competence. This particular feature of the interaction observed in the conversations between Tina and Lucy and primarily between Martin and David has not, as far as the author is aware, been reported previously in the literature.

As noted earlier, in Tina and Lucy's conversation Lucy builds on the girls' shared eye-gaze and Tina's raised eyebrows and the initiation of a smile to evoke competence in Tina as someone who was able to watch television all day (extract 19, page 193). Having identified that Tina watched television, it is Lucy who suggests that Tina watched it "all day" referring to this as "°having a right good scam°" (line 409). In managing this activity Lucy also refers to Tina as a "°lucky bugger° hfh" (line 447), displaying the "intimacy" (Jefferson et al., 1987) in their relationship as peers. In this way Lucy treats Tina as someone with considerable competence in pulling off this activity and she displays something of their identities as young people separate from their families and with shared ideals.

The most significant and recurring use of this feature is observed in the conversation between Martin and David. Here David repeatedly treats Martin's vocalisations and non-verbal actions with a rich and rather risqué sense of meaning (extracts 25-30). He does this by treating them with implicitly salacious meaning (extracts 26, 27 and extract 28, lines 258-278) and questions that place him in an embarrassing or uncomfortable position (extract 28, lines 288-297 and extracts 29 and 30). In this way he orientates to Martin's vocalisations as first pair parts rather than second pair parts. For instance, David treats a short vocalisation generated with marked falling pitch and a downward and upward eye movement (extract 28, line 288/9, page 232) as a question saying, "has she asked me out (.) recen" (line 292). Within the course of this treatment Martin displays his alignment with David's actions by smiling (line 293) and David then goes on to answer the question saying, "hhh ↑we:ll.hh .not exactly but (.) y'know s=we're getting along" (line 294). In a further example, following an unintelligible vocalisation (extract 30, line 149, page 238), David explicitly seeks the rights to treat this action as a question, saying, "does your (.) you asking me do my" (line 151). David orientates to Martin's subsequent sustained gaze as an alignment with, and affirmation of, this course of action, by answering the question with a non-committal "d'know" (line 155).

Interestingly, it is specifically the unintelligibility of Martin's vocalisations and non-verbal actions that are used as the source of the innuendo. In this way David builds the interaction around Martin's preferred modality of interaction with great effect. He plays on Martin's unintelligibility as a resource for the initiation of rather comical exchanges based around the boys' relationship with Daphne, a Learning Support Assistant in school. Like Lucy, David displays sensitivity and adaptability to Martin's vocalisations and non-verbal actions and the possibilities for the interaction brought about by these actions. In turn Martin may actively align with the proposed courses of action that David's treatments achieve.

Such competences are realised by speaking partners evoking elements of the children's shared perspectives and portraying aided speakers as achieving or striving to achieve activities desirable to both partners. For example, when Tina and Lucy discuss what Tina did on the previous Sunday (extract 19, page 193), Lucy invokes a

shared viewpoint that watching television is an enjoyable activity and in particular Tina's apparent ability to watch television all day as the achievement of a desirable activity. In the conversation between Martin and David it is the boys' shared attraction to Daphne and the expressed mutual desire to sleep with her that form the basis of David's treatment of Martin's vocalisations and non-verbal actions as meaningful. In each of these instances the speaking partner elevates the non-speaking partners' contribution to the talk, locating in them a strong sense of competence. In orientating to their partners' unintelligibility in these ways the speaking children demonstrate empirically the relevance of their relationship to the organisation of the conversation and simultaneously reveal how they accomplish their relationship in doing 'being peers'.

This analysis then has revealed some ways in which competence is achieved for these children. That is, aided speakers' competence in VOCA use and the use of vocalisations and non-verbal actions and speaking participants' competence in organising aspects of conversational interaction in response to their co-participants' limited communicative resources, and in evoking their co-participants' competence by orientating to shared perspectives and desires. Importantly then, aided speakers' and their partners' competence is seen to emerge as a practical achievement by both participants rather than being located within specific person centred categories of skill.

The analysis of these interactions has raised questions about the passivity of aided speakers' participation in interaction commonly reported in the literature. In each of these dyads both participants have displayed active participation in the interaction. It is possible that terminology such as "passive" and "dominant" may be applied too readily to the interaction experiences of children using communication aids, and stems from deficit-focused methods in analysis and comparisons with speaking children's interaction. Again, perhaps the term dominance itself suggests a perspective of conversation that is concerned with categorising features of interaction in terms of the power and control they exert. From a perspective that views the children's actions as a collaborative alliance in the accomplishment of conversational interaction, and in analysing children's actions by identifying what the children themselves treat as relevant to the interaction rather than through third-

party judgments, the analysis reveals that aided speakers display many subtle and effective contributions to the interaction and are not simply passive participants.

8.5 Clinical implications

This thesis has been motivated, in part, by a clinical concern for the support of non-speaking children with Cerebral Palsy using communication aids in interaction with their peers.

Within the AAC field research concerned with the interaction styles of adults and children using communication aids has interpreted and valued findings based on the opportunities for communication and language development such interactions provide. In an attempt to support the development of language and functional communication skills, some intervention has been concerned with supporting adults in providing greater language learning and use opportunities for children with physical disabilities using communication aids (Culp & Carlisle, 1988; Pennington et al., 1993). Other interventions have focused directly on the communication skills of aided speakers (Glennen & Calculator, 1985; Angelo & Goldstein, 1990). Intervention concerned with peer interaction has targeted the communication skills of individual aided speakers (Buzolich & Lunger, 1995) the education of aided speakers' peers (Carter & Maxwell, 1998) and aided speakers and their peers in collaborative group work (Clarke & Price, 2001). Intervention concerned with social interaction has been based on research findings founded on methodologies developed for the analysis of non-disabled language users and implicit comparisons with non-disabled speaking children's language use. The validity of utilising normal models of language development has been questioned (Kraat, 1985; Gerber & Kraat, 1992; Smith & Grove, 1999).

Exploring intervention possibilities in the context of peer interaction brings into sharp relief a recognised concern within the AAC field for identifying accurately the intended outcomes of intervention, that is, "*we need to gain a better understanding of what augmented speakers want to achieve through 'talking' to others*" (Kraat, 1985: 21). It would seem perhaps that for children using communication aids and

their peers a significant purpose of intervention might be to support the development of what Light (1989) calls "social closeness", that is, the development and maintenance of interpersonal relationships. Such an intervention focus might be concerned less with "information transfer" or formal aspects of communication. A flavour of this is evidenced in peer directed social skills training conducted with a young aided speaker (Buzolich & Lunger, 1995). In this intervention the specific skills applied in training were not observed outside the intervention setting. The authors suggest that the young aided speaker located peer interaction as a high priority but apparently without concern for the unequal distribution of conversational control observed in such interaction (Buzolich & Lunger, 1995). Put simply, as a starting point for intervention, it may be most important to support the coming together of young people using communication aids with their non-disabled peers regardless of the so-called "asymmetries" in conversational contribution or imbalances in conversational power.

Speech and Language Therapists may experience difficulty in assessing existing competencies and identifying functional communication needs. Consequently intervention may be based on limited or inaccurate interpretation of the problems faced by aided speakers in interaction. It is evident from this thesis that the detailed analysis of sequences of turns, and the description of interactional actions that are orientated to as relevant by the participants themselves in naturally occurring interaction, has revealed a range of competencies and difficulties. As such these practices in analysis provide an ecologically valid vehicle for the assessment of children's communication skills, and go some way to answering the call for research exploring the functional communication skills of aided speakers (Light, 1989).

However, the practices of Conversation Analysis used in a research context are not easily transferable to the clinical work setting. For instance, although the production of a detailed transcription requires the Speech and Language Therapist to examine carefully the detailed sequential alignment of a full range of behaviours including non-verbal actions, and that this is particularly relevant to interaction involving children with physical disability using communication aids, the process is very time-consuming. For Speech and Language Therapists with large caseloads and busy work schedules the production of a detailed transcript like that used in this thesis is

not a realistic proposition. Furthermore, the practice of learning how to examine interaction from a Conversation Analytic perspective is one that requires considerable investment in time and energy. Again, this may be an unreasonable demand for Speech and Language Therapists working in schools and with families.

In the field of acquired communication difficulties the conversation analytic approach has been adapted as a resource for assessment and intervention (Lock et al., 2001). Video recordings of naturally occurring interaction are used as a basis for discussion and exploration of communication strengths and needs between adults with acquired language disabilities, a significant other and their Speech and Language Therapist, without the need for detailed transcription. The principles of this approach, that is, that interaction strengths and needs might be identified by the participants themselves at an individual dyadic level, echoes the collaborative problem-solving approach to assessment and intervention promoted by Bjorck-Akesson, Granlund and Olsson (1996). This approach brings together relevant stakeholders to explore communicative competencies and desired outcomes for intervention identified by the participants themselves. It is possible that an approach to intervention that seeks to support peer interaction for children using communication aids might seek to combine the principles of these approaches in a distinctive form of child-focused intervention. This work would focus directly on the specific and potentially unique needs of individuals in interaction with peers and develop intervention to target such individualised patterns, rather than seeking to apply techniques or approaches that have been generalised from analysis of other aided speakers' interaction.

Such an approach might seek to examine video-recorded episodes of naturally occurring interaction. For example, in the conversation between Jamal and Colin, intervention might explore the relevance or value of signalling self-initiated self repair in VOCA use or alternatively exploring the possible benefits of Colin waiting in silence until the TRP is signalled unequivocally, and how that signal might be recognisable. In this way intervention examines issues identified as directly relevant to each dyad. So, for example, the issue of whether speaking partners should initiate entry into the turn in progress more generally, an issue that some authors have proposed (e.g., Higginbotham et al., 1988), and others rejected (e.g., Harris, 1982), is

not considered as a general issue of intervention. Instead, the child's own preferences for conversation with a specific peer are considered, and the issues under discussion are, in part, identified by an examination of the sequential placement of participants' actions and reactions in interaction. However, such an approach requires the participants to display degrees of self-awareness and a willingness to disclose issues that may be viewed as critical of their peer. This type of work requires that all participants feel that they can participate meaningfully. It is possible that in the first instance significant energies may be directed at supporting children in developing a environment in which this type of explicit talk on talk may be challenging but is acceptable and significant emphasis would fall to Speech and Language Therapists to identify and discuss the relevance of particular features in the conversation.

This individualised approach is supported by the clear variability in interaction seen between dyads in this study and reported more widely (Kraat, 1985; Light, 1988). Such variably weakens the relevance of employing intervention targets generalised from other contexts. Indeed, warnings about the overgeneralisation of research findings in communication aid related social interaction resonate deeply here (Kraat, 1985). An exploration of individually focused peer interaction experiences may provide a fruitful avenue of intervention, and this would align with the reported preference of young people using communication aids for individual-based work (Clarke et al., 2001).

Naturally such thoughts on intervention are not proposed as a replacement for existing strategies but may be explored as a means of extending the holistic view of the child developed in Speech and Language Therapy assessment and intervention. It should be acknowledged also that working with peers may place aided speakers and their peers under additional unwanted pressures. Indeed, clinical experience would suggest that children with physical disabilities using communication aids are commonly in the presence of adults in support of their daily care, communication and learning needs. Initiating peer-directed intervention might be viewed by some as an unwelcome intrusion into what few 'private' social relationships children using communication aids may claim. Furthermore, within mainstream education settings it may prove difficult to justify and organise individual, and potentially time-intensive, peer-directed intervention. Rather ironically, it is possible that the National

Curriculum may provide a vehicle for the introduction of such work through curriculum-based initiatives such as Citizenship and even perhaps Information and Communication Technology.

8.6 Review of the methodology

Observation studies incorporating measures of peer directed interaction have reported on the paucity of interaction between peers (Harris, 1982; McConachie et al., 1999). Consequently, specific pairings were brought together to engage in conversational interaction. Although not strictly naturally occurring these conversations proved to be a rich source of data and similarities observed between these findings and other work in the field suggests that the data capture method was appropriate.

The value of Conversation Analysis (CA) as a methodology for the analysis of these data has been shown. Research to date in the field of social interaction for children using communication aids has not been able to capture the unique and complex features of this form of social interaction that matches clinical experience. Indeed, it is this author's own experience that the analysis of peer interaction using quantitative, distributional methods may require analysts to subsume interesting features of interaction such as the status of VOCA generated bleeps, pauses within VOCA turns, jokes and laughter into broad categories.

Only a small amount of data were analysed in this study. The video recordings were relatively short and only three cases are reported. It is possible that this presents a significant limitation to the generalisability of these findings. However, within the CA tradition it is noted that the detailed practices that participants use to generate orderliness in conversational interaction may only be noticeable at the level of a single occurrence and that to aggregate data across studies with the aim of generalising findings incurs the risk that such detailed orderliness may be overlooked (Schegloff, 1993). It is just this concern to document the unique and detailed organisational practices in interaction for this population of children that motivated the use of CA and the presentation of findings as case studies. Furthermore, people

with Cerebral Palsy and those using communication aids are recognised as a heterogeneous population (Higginbotham & Bedrosian, 1995) and as such the value of aggregated data is weakened when subject variables vary within and between samples (van Balkolm & Heim, 1990). Indeed, this concern is reflected in the discussion of the clinical implications of this study.

The early part of this chapter has been concerned with describing the broad themes that have emerged across the studies. Despite the relatively small data set with which analysis was conducted, the findings across the three studies are not so unique or dissimilar to negate any form of comparison within this thesis or between this analysis and the literature more generally. Where relevant, comparison is also possible with findings from the body of AAC and CA literature. For example, the analysis of the use of questions, answers and response exchanges observed in the conversation between Jamal and Colin echoes conventional practices in turn taking observed in teacher pupil talk (Mehan, 1979), and is a feature of interaction between young children and their parents in picture labelling activities (Tarplee, 1996), and in labelling, question and answer sequences in adult conversation with deaf children where English is an additional language (Mahon, 2003).

In summary, Conversation Analysis has proved highly suitable for analysing multifaceted, multimodal interactions involving children using VOCAs across three case studies.

8.7 Implications for future research

This research has involved bringing children together in order to capture a detailed understanding of the ways in which they organise conversational interaction. It has been noted that this practice simulates natural interaction but essentially is not naturally occurring in the strictest sense. While the low levels of peer interaction observed for these children (McConachie et al., 1999) justified this approach, the findings suggest that future research might seek to explore aspects of interaction in other more naturally occurring school-based environments in which peer interaction is a primary focus of children's activities, such as playgrounds, corridors and school

clubs. It would seem also that a rich vein of research might be identified in the exploration of sibling interaction within a home setting. Conversation Analysis has been used effectively in the analysis of family-based interaction in which one member of the family has aphasia (Goodwin, 1995; Goodwin, 2002; Goodwin et al., 2002). This is a little researched area in the aided communication field and would provide an intriguing site of clinical intervention, particularly in light of clinical experience which suggests that VOCAs may be used rarely in home environments.

Clearly, also future work may seek to explore further the implementation of intervention strategies based on the collection of naturally occurring data and analysis of interaction patterns based on the practices of Conversation Analysis.

8.8 Concluding remarks

A recurring feature of the conversation that is evident across the three dyads concerns the interactive work that the speaking partner carries out in organising the conversational interaction, and in working to provide particular types of structural integrity for the conversation. For example, each speaking partner orientated to the VOCA as a device that they might seek to locate unambiguously in the conversation, and in this way the speaking partners sought to share responsibility for its use, orientating to the devices as a resource for the conversation as well as their partner's communication aid. This observation suggests a slight shift in the perspective with which children's peer related interactions, and communication aid users interactions more generally, may be viewed. That is, a shared responsibility for accomplishing interactional organisation and incorporating VOCA use into the talk is evident. As such these interactions may be considered as 'conversations that use communication aids' rather than conversations between non-speaking children using communication aids and their speaking peers.

The exchange of questions and answers has been observed as a recurring feature of adult – child interaction studies involving children using communication aids. In such instances it has been suggested that the characteristics observed are a consequence of adults seeking to elicit child responses and/or of striving to maintain

conversational progression, but that these actions limit the child's contribution and language learning opportunities (Light et al., 1985a; Light 1988; von Tetzchner & Martinsen, 1996). However, it is evident from this analysis that children using VOCAs in conversation with peers are not easily characterised in this way.

The analysis of these conversations revealed that non-speaking children and their peers display a range of different competences in interaction that have not been demonstrated in the literature previously. It is possible that this is a consequence of a deficit-focused perspective embedded within quantitative methodologies used in the majority of studies of social interaction. These findings were not observed in a quantitative analysis peer interaction involving children using communication aids (Clarke & Leech, 2003), although this work did observe a high proportion of behaviours such as laughing. This thesis has revealed how non-speaking children using communication aids are not solely the passive recipients of speaking partners' conversational approaches. Rather non-speaking child and their speaking partners have displayed abilities in participating in active and collaborative participation in interaction.

In analysing the conversational interaction between non-speaking children with Cerebral Palsy using communication aids and their speaking peers this thesis has cast new light on the ways in which participants orientate to the challenge of making conversation work. New insights have also been gleaned into VOCA use, in how it is organised as a resource for conversational interaction and its role in peer talk. Implications for the findings for Speech and Language Therapists working to support this population of children have been outlined and the emphasis of future work highlighted. It is apparent that at a very fundamental level conversational interaction in the dyads studied here is not like conversation between speaking partners. It would seem that while the definition of AAC is typically given as a set of tools and strategies to augment or replace speech and or reading and writing, it is apparent that for the experience of VOCA users in this study the term AAC refers more accurately to a different process of human interaction, and it is knowledge of this unique form of interaction that drives the analytical and clinical motivation for research and intervention.

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Appendices

Appendix 1

Transcription notation

The transcription notation is based on that developed by Gail Jefferson and presented in Atkinson and Heritage (1984) with adaptations for representing aspects of VOCA use.

talk	natural speech
talk	VOCA generated speech
*	VOCA generated bleep
((*smiles*))	italicised text, between 10 and 6 point font, in double brackets represents a description of non-verbal action. Font size is reduced in order to accommodate a suitable description within the space available in the transcript.
((*?smiles?*))	question marks surrounding non-verbal descriptions indicate some uncertainty in the action described
((*switching*))	indicates that the participant is actively operating switches
⌜ ⌞	a left-hand bracket links an ongoing utterance with an overlapping utterance or non-verbal action at the point where the overlap/simultaneous non-verbal action begins
⌝ ⌟	a right-hand bracket marks where overlapping utterances/simultaneous non-verbal actions stop overlapping it is possible that brackets on consecutive lines may appear slightly out of alignment. This is caused by formatting issues within the word processing package with which this thesis was written. While this is unfortunate, the onset and closure of overlapping/simultaneous events is still discernable by reference to the text located within the brackets.
=	an equals sign marks where there is no interval between adjacent utterances

(1.7)	a number on single brackets indicates the time interval to one tenth of a second
(.)	a full stop in single brackets indicates an interval of tenth of a second or less in the stream of talk
oh:	a colon indicates an extension of the sound or syllable it follows (more colons prolong the stretch)
.	a full stop indicates a stopping fall in tone
,	a comma indicates a continuing intonation
!	an exclamation mark indicates an animated tone
↑↓	marked rising and falling shifts in intonation are indicated by upward and downward pointing arrows immediately prior to the rise or fall
<u>stress</u>	underlining indicates emphasis
°no°	degree signs indicate a passage of talk which is quieter than surrounding talk
TALK	capital letters indicate talk delivered at a louder volume than surrounding talk
h,heh	indicates discernable aspiration or laughter
fu(h)n	an h in single brackets marks discernable aspiration or laughter within a word in an utterance
°h	discernable inhalation
>talk<	lesser than/greater than signs indicate sections of an utterance delivered at a greater speed than the surrounding talk
(dog)	single brackets containing either a word, phrase, or syllable count, if an utterance is very unclear, mark where target item(s) is/are in doubt
☎	telephone ringing
→	an arrow in alerts the reader as to which line contains the issue discussed in the analysis

Appendix 2

Transcript of conversation between Jamal and Colin

Line No.		Transcription of Talk
001		⌈ ((*door shutting*)) ⌉ ⌈ ((*door shutting*)) ⌉
002	C	⌊ ((*looking at J*)) ⌋ ⌊ ((*looking at J*)) ⌋
003	J	⌊ ((*looking over shoulder at door*)) ⌋ ⌊ ((*turns to look at C*)) ⌋
004	C	⌈°what you wanna talk about° ⌉
005		⌊ ((*looking at C*)) ⌋
006	J	⌈((*turns to VOCA*))⌉ ⌈((*orientated to VOCA*)) ⌉ ⌈((*orientated to VOCA*)) ⌉ *
007	C	⌊ ((*looking at J*)) ⌋ ⌊ ((*turns to look at VOCA*))⌋ ⌊ ((*looking at VOCA*)) ⌋
008		⌊ (0.7) ⌋ ⌊ (0.8) ⌋ ⌊ (1.4) ⌋
009	J	⌈ ((*orientated to VOCA*)) ⌉ *=
010	C	⌊ ((*looking at VOCA , shifts body orientation toward J*)) ⌋
011		⌊ (1.0) ⌋
012	C	=⌈what you wanna talk about ⌉ ⌈ Jam ⌉
013		⌊ ((*glances at J*)) ⌋ ⌊((*looks back to VOCA*)) ⌋
014	J	⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
015		⌊ (1.0) ⌋ ⌊ (1.3) ⌋
016	C	Brazil
017	J	⌈((*orientated to VOCA*))⌉ * ⌈***football***
018		⌊ (0.6) ⌋ ⌊((*head orientated down away from VOCA*))
019	C	⌈ football (.) ok ⌉
020		⌊((*looking at VOCA*))⌋
021	C	⌈((*sits back in chair and looks away from VOCA*))⌉
022	J	⌊ ((*looking down to right*)) ⌋
023		⌊ (1.2) ⌋
024	C	⌈((*sitting back in chair looking away*))⌉
025	J	⌊ ((*orientates to VOCA*)) ⌋
026		⌊ (0.8) ⌋
027	C	⌈How many ti:mes have⌈ England won the world cup
028	C	⌊ ((*looking forward*)) ⌋((*looking forward*))
029	J	⌊ *
030	J	⌈((*orientated to VOCA*)) ⌉ * ⌈ ((*orientated to VOCA*)) ⌉ *
031	C	⌊ ((*looking at forward*)) ⌋ ⌊((*looks at VOCA then to J*)) ⌋
032		⌊ (0.4) ⌋ ⌊ (1.5) ⌋
033	J	⌈((*orientated to VOCA*))⌉ * ***one***

034 C | ((*looking at J*)) |
035 ⌊ (1.2) ⌋
036 J ⌈((*turns toward C and looks at him*))⌉
037 C | ((*looking at J*)) |
038 ⌊ (2.2) ⌋
039 C ⌈wu (.) now you ⌈ask me a ⌉question about football⌉
040 C | ⌊((*points at J*))⌋ |
041 ⌊ ((*J & C looking at each other*)) ⌋
042 J ⌈ ((*turns & looks up to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
043 C |((*looks down at his hand on w'chair tray*))| | ((*looks up at VOCA*)) |
044 ⌊ (2.2) ⌋ ⌊ (0.9) ⌋
046 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***how***
047 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
048 ⌊ (4.2) ⌋ ⌊ (2.1) ⌋
049 J ⌈((*orientated to VOCA*))⌉ ***m*** ⌈((*orientated to VOCA*))⌉
050 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
051 ⌊ (3.0) ⌋ ⌊ (1.6) ⌋
052 C how man⌈y: ⌈ ((*looking at VOCA*)) ⌉
053 J ⌊* ***a*** |((*orientated to VOCA*)) | * ***n***
054 ⌊ (0.6) ⌋
056 J ⌈((*orientated to VOCA*))⌉ * ***y*** ⌈ ((*notes from VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉
057 C | ((*looking at VOCA*)) | ⌊ °how ma (.) ny° ⌋ | ((*looking at VOCA*)) |
058 ⌊ (0.4) ⌋ ⌊ (1.7) ⌋
059 C ⌈times⌉
060 J ⌊* ⌋ * ***time***
061 J ⌈((*orientated to VOCA*))⌉ *
062 C | ((*looking at VOCA*)) |
063 ⌊ (1.1) ⌋
064 C ⌈ has Bra ⌉ ⌈zil ⌉ ⌈won
065 J ⌊((*orientated to VOCA*))⌋ ⌊***times***⌋ ⌊*
066 J ⌈ ((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
067 C |((*looks at J & back to VOCA*)) | | ((*looking at VOCA*)) |
068 ⌊ (1.4) ⌋ ⌊ (1.4) ⌋
069 J ⌈((*orientated to VOCA*))⌉ * ***has*** ⌈((*orientated to VOCA*))⌉ *
070 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
071 ⌊ (1.0) ⌋ ⌊ (0.8) ⌋
072 J ⌈((*orientated to VOCA*))⌉ * ***mexico***

073 C | ((*looking at VOCA*)) |
074 | (1.1) |
075 J ⌈((*orientated to VOCA*))⌉ ⌈*
076 C |((*looking at VOCA*)) | ⌊qualified
077 ⌊ (2.8) ⌋
078 J ⌈((*orientated to VOCA*))⌉ ***won***
079 C | ((*looking at VOCA*)) |
080 ⌊ (1.9) ⌋
081 J ⌈ ((*turns to C*)) ⌉ ⌈((*looking at C*))⌉
082 C |((*continues to look at VOCA*))| | ((*looks at J*)) |
083 ⌊ (3.5) ⌋ ⌊ (0.8) ⌋
084 C ⌈once
085 ⌊((*raises finger*))
086 J ⌈ ((*looking at C*)) ⌉ ((*turns to VOCA*))
087 C |((*looking at J finger raised*))|
088 ⌊ (4.1) ⌋
089 C am I right
090 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
091 C | ((*looking at J*)) | | ((*looks at VOCA*)) |
092 ⌊ (0.7) ⌋ ⌊ (1.9) ⌋
093 J ⌈***yes***
094 ⌊ ((*head turn slightly toward C, looks to C*))
095 C ⌈ye:ah!
096 ⌊((*leans back and raises both arms in celebration looking away*))
097 C ⌈how many times have Brazil⌉ ⌈won the world cup
098 | ((*looking ahead & to right*)) ⌋ ⌊ ((*looks at VOCA*
099 J ⌊((*head tilted and turned toward C*))
100 J ⌈((*orientates to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ ***of course***
101 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
102 ⌊ (3.0) ⌋ ⌊ (1.6) ⌋
103 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ ***four*** ⌈((*looks at C*))⌉
104 C | ((*looking at VOCA*)) | |((*looking at VOCA*)) | ⌊((*looks at J*))⌋
105 ⌊ (0.8) ⌋ ⌊ (1.0) ⌋
106 C ⌈ye: ⌈ :eah
107 ⌊((*flicks arm forward and pulls it back toward chest, leaning back, looking at J*)) ⌊ ((*arm reaches chest, looks at VOCA*))
108 C ⌈ spot on ⌉
109 |((*leaning back looking at VOCA*)) |

110 J | [hɜ] |

111 | ((*turns head left and down*)) |

112 (0.8)

113 C ⌈ um: ⌉ ⌈ (1.3) ⌉

114 | ((*looking straight ahead*)) | |((*gaze toward VOCA area*)) |

115 J |((*head at rest looking ahead/down*))| | ((*orientates to VOCA*)) |

116 C ⌈ how old am ⌉ ⌈I

117 |((*looking at VOCA*))|((glances ahead)) |((*looking at VOCA*))

118 J | [ɦə] | | *

119 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

120 C | ((*looks at J*)) | | ((*looking at J*)) |

121 | (1.7) | | (0.8) |

122 J ⌈((*orientated to VOCA*))⌉ * ⌈((turns to C)) ⌉ ***seven***

123 C | ((*looking at J*)) | |((*looking at J*))|

124 | (0.6) |

125 C seven an a <u>half</u> (1.0)⌈near:ly ⌉

126 J |[hɪɜ] |

127 C how (.) now⌈you ask me a question⌉

128 | ((*points at J*)) |

129 C ⌈ ((*looks up fixing gaze on VOCA momentarily before J*)) ⌉

130 J |((*looks up at VOCA momentarily after C, lifts head slowly and orientates infra red pointer to VOCA*))|

131 | (1.8) |

132 (first pair of pulsed rings heard from phone) ☎ (.)☎

133 J ⌈*

134 C |[ʊ:] ⌉

135 |((*turns to J*))|

136 J ⌈((*orientated to VOCA*))⌉

137 C | ((*looking at J*)) | that phone

138 | (0.4) |

139 J ⌈((*orientated to VOCA*))⌉ *

140 C | ((*looks forward*)) |

141 | (0.7) |

142 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*)) ⌉ *

143 C | ((*looking forward*)) | |((*glancing to and from VOCA*)) |

144 | (1.7) | | (2.3) |

145 J ⌈((*orientated to VOCA*)) ⌉ * ***how*** ⌈ ((*orientated to VOCA*)) ⌉

146 C |((*glancing to and from VOCA*))| |((head orientated forward eyes looking up at VOCA, frowning))|

147 | | | (musical tones heard from phone) |
148 └ (1.4) ┘ └ (5.0) ┘
149 J ⌈ ((*orientated to VOCA*)) ⌉
150 C |((*leans to'rd J & orientates to VOCA*))|
151 ☎ | the other person has hung up |
152 └ (VOCA bleeps masked by phone) ┘
153 J * ***m*** ⌈((*orientated to VOCA*))⌉ * ***u*** ⌈((*orientated to VOCA*))⌉ * ***c***
154 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
155 └ (1.1) ┘ └ (1.4) ┘
156 J ⌈((*orientated to VOCA*))⌉ * ***h*** ⌈((*orientated to VOCA*))⌉ * ***how much***
157 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
158 └ (0.4) ┘ └ (1.2) ┘
159 J (*tones heard from VOCA*) ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
160 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
161 └ (0.6) ┘ └ (0.4) ┘
162 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
163 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
164 └ (1.5) ┘ └ (1.0) ┘
165 (*telephone stops ringing*)
166 J * ⌈((*orientated to VOCA*))⌉
167 C |((*looking at VOCA*)) |
168 └ (1.8) ┘
169 J ⌈((*orientated to VOCA*))⌉ *
170 C └((*looking at VOCA*))┘
171 C ⌈ how ⌈ much what
172 └((*looking at VOCA*)) |((*looking at VOCA*))
173 J └*
174 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
175 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
176 └ (0.5) ┘ └ (1.6) ┘
177 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉
178 C |((*looking at VOCA*)) | | ((*looking at VOCA*)) |
179 └ (1.5) ┘ └ (1.2) ┘
180 J ⌈*
181 C |ho:w ⌉⌈m:uch ⌉ ⌈ w:hat ⌉
182 └((*nod*))┘ └((*nod*))┘ └((*nod*))┘
183 J ⌈((*orientated to VOCA*))⌉ ***old*** ⌈((*orientated to VOCA*))⌉
184 C | ((*turns to J smiling*))| | ((*looking at J*)) |

185 ⌊ (0.3) ⌋ ⌊ (1.3) ⌋

186 C ⌈ how ⌈much⌉ ⌈hold ⌈ (*sniffs*)

187 ⌊((*glances* | *down*))⌋ ⌊((*looks at J*)) ⌊((*looks up at VOCA*))

188 J ⌊*

189 J * ***am I*** (0.6) *⌈***how old** ⌈***am I***

190 | ((*turns head* | *toward C smiles*))

191 C ⌊ how old ⌊((*looks at J*))

192 (1.2)

193 J ⌈eight

194 C ⌊((*points at J*))

195 J ⌈((*looking at C*)) ((*orientates to VOCA*)) ((*orientated to VOCA*))⌉

196 C | ((*looking at J*)) ((*looking at J*)) ((*turns to look at VOCA*))|

197 ⌊ (6.6) ⌋

198 J ⌈((*orientated to VOCA*))⌉ * ***yes***

199 C | ((*looking at VOCA*)) |

200 ⌊ (2.2) ⌋

201 C ⌈yea:::h⌈h. ⌉ um

202 ⌊ ((*pund* | *hes air*))⌋

203 J ⌊*

204 J ⌈((*orientated to VOCA*))⌉ *

205 ⌊ (0.9) ⌋

206 J ⌈ ⌈((*looks left away from C*))⌉ ⌈((*looking to left*))⌉ ⌉

207 C | ⌊ ((*looking down*)) ⌋ ⌊ ((*looks at J*)) ⌋ |

208 ⌊ (1.5) ⌋

209 C how old is Craig

210 J ⌈((*orientated to VOCA*))⌉ * ⌈ ((*orientated to VOCA*)) ⌉ * ***two***

211 C |((*looking down*)) | |((*glances to J then looks down again*))|

212 ⌊ (1.9) ⌋ ⌊ (2.2) ⌋

213 J ⌈ ((*orientated to VOCA*)) ⌉

214 C |((*looking down then looks up at J*)) |

215 ⌊ (2.2) ⌋

216 C ⌈*

217 J |ts: k

218 ⌊((*holds hand to mouth*))

219 J * ⌈***four***

220 ⌊[həhə]

221 J ⌈((*orientated to VOCA*))⌉ * ⌈ ***twenty four*** ⌉ [hə]

222 | ((*orientated to VOCA*)) | ⌊((*turns & looks at C*)) ⌋

223 ⌊ (1.2) ⌋

224 J ⌈((*looking at C*))⌉

225 C | ((*looking at J*)) |

226 ⌊ (0.5) ⌋

227 C a:h twenty four

228 J [ə:əhəhə] ⌈[ʕ: : :] ⌉

229 C ⌊wu I can't say yes or ⌋ no 'cause I don't know

230 J ((*orientates to VOCA*))

231 C ⌈[ʃɣ:]

232 ⌊((*follows J's gaze to VOCA*))

233 J ⌈ ((*orientated to VOCA*)) ⌉ ⌈* ***and*** ⌉⌈((*orientated to VOCA*)) ⌉

234 C ⌊ ((*sniffs & looks at camera*)) ⌋ ⌊((*looking at camera*))⌋ | ((*looking at camera*)) |

235 ⌊ (0.9) ⌋

236 J [hɜ: :] (0.9) [hɑ:] ⌈ [: : ə] ⌉ *

237 C ⌊((*from looking at camera turn to look up at VOCA*))⌋

238 J ⌈ [hɜ: : :] ⌉ * ⌈((*orientated to VOCA*))⌉

239 C ⌊((*looking at VOCA*)) ⌋ | ask |

240 ⌊ ((*turns to J*)) ⌋

241 C ⌈ me

242 | ((*points to J*))

243 J ⌊ *

244 J ***ei⌈ght***

245 C ⌊a question now

246 J ⌈((*orientated to VOCA*))⌉ * ***four*** ⌈((*orientated to VOCA*)) ⌉

247 C | ((*looking at J*)) | | ((*looking at J*)) |

248 ⌊ (0.8) ⌋ ⌊ (1.0) ⌋

249 J [hɜ: :] ⌈ * ***two*** ⌉ ***hundred and eight four***

250 J ⌊[həhə] ⌋

251 J ⌈ ((*turns to C smiling*)) ⌉⌈[ɜ:hə]

252 C | ((*looking at J raises eyebrows & smile*)) |⌊((*leans back looks down*))

253 ⌊ (1.5) ⌋

254 (0.8)

255 C <u>two</u>⌈ hundred and ↑<u>ei</u> ⌉<u>ghty</u> four

256 J | [hɜ:]↑ |

257 ⌊((*looks up at VOCA*))⌋

258 J [ɑ:hə]

259 J ⌈((*orientates to VOCA*)) ⌉ * ⌈((*orientated to VOCA*)) ⌉ ⌈*

260 C |((*looking at VOCA smiles*)) | | [h^n] | ⌊(sniffs)

261 ⌊ (1.4) ⌋ ⌊ (2.7) ⌋

262 J ⌈((*orientated to VOCA*))⌉ * ⌈((*looks to left toward window & back to VOCA*))⌉

263 C | ((*looks up*)) | |((*looking generally in direction of window*)) |

264 ⌊ (3.0) ⌋ ⌊ (4.8) ⌋

265 J ask ⌈ me a question

266 C ⌊*

267 J ⌈((*orientated to VOCA*))⌉ * ***what*** ⌈((*orientated to VOCA*))⌉ * ***what's*** *

268 C | ((*looks at VOCA*)) | | ((*looking at VOCA*)) |

269 ⌊ (1.6) ⌋ ⌊ (1.0) ⌋

270 J ⌈((*orientated to VOCA*))⌉ * ***your***

271 C |((*looking at VOCA*)) |

272 ⌊ (1.1) ⌋

273 J ⌈((*orientated to VOCA*))⌉ *

274 C |((*looking at VOCA*)) |

275 ⌊ (1.3) ⌋

276 J ⌈ ((*orientated to VOCA*)) ⌉ * ***mum*** * ***mum's*** *

277 C |((*turns slightly away from VOCA toward J*))|

278 ⌊ (1.1) ⌋

279 J ⌈ ((*orientated to VOCA*)) ⌉ *

280 C | ((*looking toward J*)) |

281 ⌊ (0.5) ⌋

282 J ⌈ ((*orientated to VOCA*)) ⌉ * ***name*** ((*turns to C*))

283 C | ((*looking toward J*)) |

284 ⌊ (1.8) ⌋

285 (0.9)

286 C Susie:

287 J ⌈((*head forward and tilted down slightly looking at C smiling*))⌉

288 C | ((*looking at J*)) |

289 ⌊ (1.4) ⌋

290 ⌈ ((*holding that position*)) ⌉

291 |((*swivels chair to right and back but remains looking at J*))|

292 ⌊ (1.6) ⌋

293 J ⌈ ((*tilts head up*)) ⌉

294 C |((*chair moves through last arc of swivel*))|

295 ⌊ (0.6) ⌋

296 C I know your mum's name

297 J *⌈((?startles? & orientates to VOCA)) ⌉

298 ⌊ (1.9) ⌋

299 C Phoebe

300 J * ⌈((orientated to VOCA))⌉ *

301 C | ((looking at J)) |

302 ⌊ (1.2) ⌋

303 J ⌈((orientated to VOCA))⌉ * ***Phoebe*** ((looks to left away from C))

304 C | ((looking toward J)) |

305 ⌊ (3.0) ⌋

306 J ⌈ ⌈((looking to his left))⌉ ⌈((head moves back to centre and gaze moves up to VOCA))⌉ ⌉

307 C | ⌊ ((looking at J)) ⌋ ⌊ ((looking at J)) ⌋ |

308 ⌊ (2.0) ⌋

309 C yeah

310 J ⌈((orientated to VOCA)) ⌉⌈*

311 C | ((looks from J to VOCA)) | ⌊is that your mum's name

312 ⌊ (1.3) ⌋

313 J ⌈((orientated to VOCA))⌉ * ⌈((orientated to VOCA))⌉ *

314 C | ((looking at J)) | | ((looking at J)) |

315 ⌊ (1.2) ⌋ ⌊ (2.5) ⌋

316 J ⌈ ((orientated to VOCA)) ⌉ * yes ⌈((looks down and tilts left head slightly away from VOCA, smiles))

317 C |((eyes move to w'chair tray))| ⌊((looks at J))

318 ⌊ (1.2) ⌋

319 C ⌈ye:a:h:! ⌉ ⌈got it right

320 ⌊((punches air))⌋ |((turns away from J smiling))

321 J ⌊((turns head away from C slightly then looks up at VOCA))

322 J ⌈((orientated to VOCA))⌉

323 C |((looking forward)) |

324 ⌊ (1.8) ⌋

325 J ⌈*

326 C | what's

327 ⌊((turns toward J))

328 C ⌈my ⌈ second name

329 |((gaze rests on J)) |((looking at J))

330 J ⌊((orientated to VOCA)) ⌊((orientated to VOCA))

331 J ⌈((orientated to VOCA))⌉ * ⌈((orientated to VOCA)) ⌉ *

332 C | ((*looks down*)) | | ((*looks at phone*)) |
333 | | | ((phone rings)) |
334 ⌊ (2.6) ⌋ ⌊ (3.6) ⌋
335 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*)) ⌉ *
336 C |((*looks forward left*)) | |((*looking forward left*)) |
337 | | | ((phone rings)) |
338 ⌊ (1.0) ⌋ ⌊ (2.5) ⌋
339 J ⌈((*orientated to VOCA*))⌉* ***I can't***
340 C |((*looking forward left*))|
341 ⌊ (1.4) ⌋
342 J ⌈((*orientated to VOCA*))⌉* ⌈((*orientated to VOCA*))⌉* ***remember***
343 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
344 J ⌊ (0.6) ⌋ ⌊ (2.1) ⌋
345 J ⌈ ((*turns toward C*)) ⌉
346 C |((*looking at VOCA*)) |
347 ⌊ (1.8) ⌋
348 C Winston
353 ⌈((*looking at each other*))
354 ⌊(3.2)
355 C what's that phone doing
356 C ⌈((*C looks at video and waves hand*))
357 ⌊(5.6)
358 C ⌈um: now I'm gonna as⌉⌈k <u>you</u> a quest'n ⌉⌈ (.) ⌉
359 | ((*looking at VOCA*)) ||((*looks at J*)) ||((*lifts hand to point*)) |
360 J ⌊((*orientated to VOCA*)) ⌋⌊((*orientated to VOCA*))⌋⌊ * ⌋
361 C ⌈ now you ask ⌉⌈ me ⌉
362 |((*reaching forward, glances down*))| |((*reaches full extension of point to J's chest, looking at J*))|
363 J ⌊ ((*orientated to VOCA*)) ⌋⌊ ((*orientated to VOCA*)) ⌋
364 C ⌈ a question ⌉
365 |((*drops hand to w'chair tray, looks down at w'chair tray*))|
366 J ⌊ ((*orientated to VOCA*)) ⌋
367 J ⌈((*orientated to VOCA*))⌉ *⌈((*orientated to VOCA*))⌉ * ***do***
368 C | ((*looking down*)) | |((*looks up at VOCA*)) |
369 ⌊ (4.6) ⌋ ⌊ (1.4) ⌋
370 J ⌈ ((*turns to window*)) ⌉
371 C |((*looking at VOCA*, tilts head toward VOCA))|
372 ⌊ (2.2) ⌋

373 C ⌈do I know your second name⌉
374 ⌊ ((*looking at VOCA*)) ⌋
375 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
376 C | ((*looking at J*)) | | ((*looking at J*)) |
377 ⌊ (2.5) ⌋ ⌊ (3.1) ⌋
378 J ⌈((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
379 C |((turns to look at VOCA)) | | ((*looking at VOCA*))|
380 ⌊ (1.4) ⌋ ⌊ (1.2) ⌋
381 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
383 C | ((*looking at VOCA*)) | | ((*looking at VOCA*))|
384 ⌊ (1.4) ⌋ ⌊ (3.7) ⌋
385 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***friday***
386 C | ((*looking at VOCA*))| |((*looking at VOCA*)) |
387 ⌊ (1.4) ⌋ ⌊ (1.2) ⌋
388 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***do you***
389 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
390 ⌊ (1.2) ⌋ ⌊ (0.9) ⌋
391 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***play***
392 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
393 ⌊ (1.4) ⌋ ⌊ (1.5) ⌋
394 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***football***
395 C |((*looking at VOCA*)) | |((*looking at VOCA*)) |
396 ⌊ (0.8) ⌋ ⌊ (1.9) ⌋
397 J ⌈((*orientated to VOCA*)) ⌉ * ⌈ ((*orientated to VOCA*)) ⌉
398 C | y: e: | | a: h: ! |
399 |((*punches air and orient| ates | body to J, looking at him*)) |
400 ⌊ (1.8) ⌋ ⌊ (1.1) ⌋
401 J *⌈ ((*orientated to V OCA*)) ⌉ * (***here / near***)
402 C | ((*looks from J to VOCA*))|
403 ⌊ (1.3) ⌋
404 C ⌈ the ⌉ park
405 J |((*orientated to VOCA*))| *
406 |((*looking at VOCA* |
407 ⌊ (1.8) ⌋
408 J ⌈((*orientated to VOCA*))⌉ * ***after***
409 C | ((*looking at VOCA*)) |
410 ⌊ (2.9) ⌋

411 J ⌈((*orientated to VOCA*))⌉ *

412 C |((*looking at VOCA*)) |

413 ⌊ (1.2) ⌋

414 C ⌈ school ⌉

415 | ((*looking at VOCA*)) |

416 J ⌊((*orientated to VOCA*))⌋

417 J * ((*eye gaze drops from VOCA*)) ***school*** =

418 J ((*head moves down and tilts toward C*))

419 C ⌈ yep ⌉

420 | ((*nods still looking at VOCA*))|

421 J ⌊ ((*orientated toward C*)) ⌋

422 C ⌈((*nods turning to look at J*))⌉

423 ⌊ (0.9) ⌋

424 C ⌈ I do ⌉

425 | ((*looking at J*)) |

426 J ⌊((*orientated toward C*))⌋

427 C ((*looks down*)) =

428 J ((orientates to VOCA))

429 J ⌈((*orientated to VOCA*))⌉

430 C | ((*looking down*)) |

431 ⌊ (3.4) ⌋

432 C ⌈ un ⌉ ⌈we ⌈always win ⌉ =

433 | ((*looking down*)) | |((*look* | *at J*)) |

434 | | | ⌊ * |

435 J ⌊((*orientated to VOCA*)) ⌋ ⌊((*orientated to VOCA*))⌋

436 J ⌈ ((*orientated to VOCA*)) ⌉ ⌈ [ɜ:] ⌉

437 C | ((*looking at J*)) | |((*looking at J*)) |

438 ⌊ (0.3) ⌋ ⌊ (0.2) ⌋

439 C ⌈ Loughton ⌉

440 | ((*looking at J*)) |

441 J | [həɜ:] |

442 ⌊((*orientated to VOCA*))⌋

443 C ⌈al = ⌉

444 |((*looking at J*))|

445 J ⌊* ⌋

446 C ⌈ ways wins ⌉

447 | ((*looking at J*)) |

448 J | [hæɜ:] |
449 ⌊((*orientated to VOCA*))⌋
450 C ⌈ ((*looking at J*)) ⌉
451 J |((*orientated to VOCA*)) |
452 ⌊ (1.0) ⌋
453 C ⌈ Loughton ⌉
454 | ((*looking at J*)) |
455 J | [ɜ:æh] | *
456 ⌊((*orientated to VOCA*)) ⌋
457 J ⌈ [ɜ::] ⌉ *
458 | ((*orientated to VOCA*)) |
459 C | ((*leans in closer to J & looks at VOCA*))|
460 ⌊ (1.8) ⌋
461 J ⌈ ((*orientated to VOCA*)) ⌉
462 C |((*leans back in chair looking at VOCA*))| *you see Sanchez there* ((*turns to J*))
463 ⌊ (1.8) ⌋
464 J ((*turns to C*)) ⌈ [ɜ::] ⌉
465 ⌊((*smiles*))⌋
466 J ⌈ ((*orientates VOCA*)) ⌉ * ⌈((*orientated to VOCA*)) ⌉
467 C |((*turns to look at camera & smiles*))| |((*looking around room*))|
468 ⌊ (1.9) ⌋ ⌊ (1.6) ⌋
469 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***two***
470 C |((looking around room))| |((*looking around room*))|
471 ⌊ (1.9) ⌋ ⌊ (1.2) ⌋
472 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
473 C |((looks toward VOCA))| | ((*looking at VOCA*)) |
474 ⌊ (0.4) ⌋ ⌊ (2.0) ⌋
475 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***the***
476 C | ((*looking at VOCA*)) | | ((*looking at room*)) |
477 ⌊ (1.6) ⌋ ⌊ (1.2) ⌋
478 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ * ***two***
479 C | ((*looking at room*)) | | ((*looking at room*)) |
480 ⌊ (0.8) ⌋ ⌊ (1.8) ⌋
481 J ⌈((*orientated to VOCA*))⌉ * ***Sanchez*** ⌈((*orientated to VOCA*))⌉ *
482 C | ((*looking at room*)) | | ((*looking at room*)) |
483 ⌊ (0.6) ⌋ ⌊ (0.5) ⌋
484 J ⌈***Sanchez's the two Sanchez's***⌉

485 C ⌊ ((*looking at room*)) ⌋

486 (0.8)

487 C ((*turns and glances at VOCA*)) ⌈yep ⌉

488 ⌊((*looks at J*))⌋

489 (1.8)

490 C huh Sanchez hu:hu:Hugo

491 (1.5)

492 C Sanchez (.) Sanchez Wilks and Sanchez Hugo

493 C ⌈ ((*looks at J*)) ⌉

494 J |((*looking at C*))|

495 ⌊ (1.9) ⌋

496 C which ones Sanchez Hugo

497 J ⌈orientates to VOCA⌉ *⌈((*orientated to VOCA*))⌉

498 C | ((*looking at J*)) | | ((*looking at VOCA*)) |

499 ⌊ (4.0) ⌋ ⌊ (2.8) ⌋

500 J ⌈ ((*orientated to VOCA*)) ⌉

501 C |the big one or the small one|

502 ⌊ ((*looking at VOCA*)) ⌋

503 J ⌈((*orientated to VOCA*))⌉ * ***purple***

504 C | ((*looking at VOCA*)) |

505 ⌊ (3.5) ⌋

506 (1.1)

507 C yes

508 (1.9)

509 C which one's ⌈Sanchez Wilks

510 J ⌊*

511 (0.7)

512 J ***green***

513 (0.9)

514 C yes

515 (1.6)

516 C Wilks Sanchez Wilks (0.3) hu hu funny name

517 J ⌈ ((*looking out of window to left then turns and orientates to VOCA*)) ⌉ *

518 C |((looking towards J., has J. orientates to VOCA see turns away from J. and looks ahead into the room))|

519 ⌊ (5.6) ⌋

520 (1.7)

521 C tell me your best song

522 J ⌈((*orientates to VOCA*))⌉ *

523 C | ((*looking at J.*)) |

524 ⌊ (2.1) ⌋

525 J ⌈((*orientated to VOCA*))⌉ *

526 C | ((*looking at J*)) |

527 ⌊ (2.9) ⌋

528 C ⌈ i s i t ⌉⌈Asha

529 J ⌊((*orientated to VOCA*))⌋⌊*

530 J ⌈((*orientated to VOCA*))⌉ * ***Asha you make me wanna***

531 C | ((*looking at J.*)) |

532 ⌊ (2.4) ⌋

533 (0.8)

534 C yeah sing it

535 J ⌈((*orientates to VOCA*))⌉ * ⌈((*orientated to VOCA*)) & (vocalises)⌉ *

536 C | ((*looks at VOCA*)) | | ((*looking at VOCA*)) |

537 ⌊ (4.6) ⌋ ⌊ (1.5) ⌋

538 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

539 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

540 ⌊ (1.1) ⌋ ⌊ (1.8) ⌋

541 J ⌈((*orientated to VOCA*))⌉ * ***I can't*** ((*looks down to his left*))

542 C | ((*looking at VOCA*)) |

543 ⌊ (1.1) ⌋

544 C ⌈((*looking at VOCA and turns to J*))⌉ why not

545 ⌊ (1.4) ⌋

546 J ⌈((*orientates to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

547 C | ((*looking at J*)) | | ((*looking at J*)) |

548 ⌊ (3.3) ⌋ ⌊ (1.6) ⌋

549 J ⌈((*orientated to VOCA*))⌉ * ***he isn't*** * ⌈((*orientated to VOCA*))⌉ *

550 C | ((*looking at J*)) | | ((*looking at J*)) |

551 ⌊ (1.2) ⌋ ⌊ (1.0) ⌋

552 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

553 C | ((*looking at J*)) | | ((*looking at J*)) |

554 ⌊ (1.5) ⌋ ⌊ (1.2) ⌋

555 J ⌈((*orientated to VOCA*))⌉ *

556 C | ((*looking at J*)) |

557 ⌊ (1.4) ⌋

558 C ⌈ he's ⌉

559 ⌊ ((*orientates to VOCA*)) ⌋

560 C ⌈not on it anymore

561 J ⌊*

562 ⌊((*looking at VOCA*))

563 J ⌈((*orientated to VOCA*))⌉ * ***it isn't*** * ⌈((*orientated to VOCA*))⌉ * ***on***

564 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

565 ⌊ (0.8) ⌋ ⌊ (1.3) ⌋

566 J ⌈((*orientated to VOCA*))⌉

567 C | ((*looking at VOCA*)) |

568 ⌊ (1.6) ⌋

569 C ⌈ ok put a ⌉ ⌈ song on

570 J | ((*reaches to towel on J's tray*)) | |((*starts to lift towel*))

571 ⌊ ((*orientated to VOCA*)) ⌋ ⌊*

572 J ⌈ ***this*** ⌉ ⌈ ((*orientated to VOCA*)) ⌉

573 C ⌊((*lifts towel*))⌋ |((*places towel on J's chest*)) |

574 ⌊ (1.0) ⌋

575 J ⌈*

576 C ⌊put⌈a different song on there⌉

577 ⌊ ((*withdraws hand*)) ⌋

578 J ⌈ ((*orientated to VOCA*)) ⌉ * ***Delta Talker***

579 C |((*looking at J & turns to VOCA*)) |

580 ⌊ (1.8) ⌋

581 J ⌈ ((*looking down*)) ⌉

582 C |((*looking at VOCA*))|

583 ⌊ (5.1) ⌋

584 J ⌈*

585 J ⌊((*VOCA bleeps whilst J is looking down & not orientated toward it. J startles and orientates to VOCA*))

586 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

587 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

588 ⌊ (1.6) ⌋ ⌊ (1.3) ⌋

589 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

590 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |

591 ⌊ (1.4) ⌋ ⌊ (2.0) ⌋

592 J ⌈((*orientated to VOCA*))⌉ * ***Johnny***

593 C | ((*looking at VOCA*)) |

594 ⌊ (2.2) ⌋

595 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *

596 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
597 ⌊ (1.0) ⌋ ⌊ (1.4) ⌋
598 J ⌈((*orientated to VOCA*))⌉ * ***j***
599 C | ((*looking at VOCA*)) |
600 ⌊ (1.0) ⌋
601 J ⌈((*orientated to VOCA*))⌉ * ***o***
602 C | ((*looking at VOCA*)) |
603 ⌊ (0.9) ⌋
604 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
605 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
606 ⌊ (3.2) ⌋ ⌊ (1.0) ⌋
607 J ⌈ what song you ⌉
608 C ⌊((*orientated to VOCA*))⌋
609 C ⌈putting
610 J ⌊*
611 C ⌈on
612 ⌊((*eyes look down from VOCA & toward J*))
613 J ⌈***a***
614 C ⌊((*looking at J*))
615 J ⌈((*orientated to VOCA*))⌉ * ***c*** ⌈((*orientated to VOCA*))⌉ * ***k***
616 C | ((*looking at J*)) | | ((tilts head down)) |
617 ⌊ (0.9) ⌋ ⌊ (1.1) ⌋
618 J ⌈ ((*orientated to VOCA*)) ⌉ *
619 C | ((*looks forward and down away from VOCA*)) |
620 ⌊ (0.7) ⌋
621 J ⌈ ((*orientated to VOCA*)) ⌉ *
622 C |((*looks downward, arms raises, touches nose*)) |
623 ⌊ (2.0) ⌋
624 J ⌈ ((*orientated to VOCA*)) ⌉ *
625 C |((*looking down then looks at VOCA*))|
626 ⌊ (1.7) ⌋
627 C ⌈ Jack ⌉
628 J ⌊ ((*orientated to VOCA*)) ⌋
629 J ***goes***
630 J ⌈((*orientated to VOCA*))⌉
631 V | ((*looking at VOCA*)) |
632 ⌊ (2.1) ⌋

633 C ⌈wh ⌈at ⌉
634 ⌊((turns| to J))⌋
635 J ⌊*
636 J ⌈ ((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
637 C |((*looks at own arm on back of chair behind J's head*))| | ((looks at camera)) |
638 ⌊ (1.2) ⌋ ⌊ (1.9) ⌋
639 J ⌈((*orientated to VOCA*))⌉ * ⌈((*orientated to VOCA*))⌉ *
640 C | ((*looking at camera*))| | ((*looking at camera*)) |
641 ⌊ (1.3) ⌋ ⌊ (1.2) ⌋
642 J ⌈((*orientated to VOCA*))⌉ * ⌈ ((*orientated to VOCA*)) ⌉* ⌈***j***
643 C | ((*looking at camera*)) | | ((*looks down*)) | ⌊((*turns to VOCA*
644 ⌊ (0.8) ⌋ ⌊ (2.1) ⌋
645 J ⌈((*orientated to VOCA*)) ⌉* ***o***
646 C | ((*looking at VOCA*)) |
647 ⌊ (1.0) ⌋
648 J ⌈((*orientated to VOCA*)) ⌉ * ⌈((*orientated to VOCA*))⌉ *
649 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
650 ⌊ (1.1) ⌋ ⌊ (1.0) ⌋
651 C [dʒʊ:⌈:]
652 J ⌊*
653 J ⌈((*orientated to VOCA*))⌉
654 C | ((*looking at VOCA*)) |
655 ⌊ (1.5) ⌋
656 J ⌈((*orientated to VOCA*))⌉ * ***is*** ⌈((*orientated to VOCA*))⌉ *
657 C | ((*looking at VOCA*)) | | ((*looking at VOCA*)) |
658 ⌊ (1.2) ⌋ ⌊ (0.5) ⌋
659 J ⌈((*orientated to VOCA*))⌉
660 C | ((*looking at VOCA*)) |
661 ⌊ (2.0) ⌋
662 C Jo i⌈s*:*
663 J |* ***mad*** ((*smiles*))
664 ⌊ ((*looking at VOCA*))
665 (0.6)
666 C ma:⌈d [ks::k]
667 J ⌊ * ***Jo is mad*** ((*turns toward C*))
668 C ⌈Jo is mad
669 J ⌊°[e:həɜ:]°

670		(1.0)
671	C	what that's the song your gonna put on
672	J	⌈ °[ɜː ː]°
673		⌊((*shakes head*))
674	C	((*lifts towel to J's chest*))
675		((*adult enters room*))

Appendix 3

Conversation between Tina and Lucy

001 * L ⌈((*raises arms in shrug, pulls a face*))⌉
002 T ⌊ ((*smiles*)) ⌋
003 L °wu talk about school°
004 (1.0)
005 L ⌈school ⌉
006 T ⌊ ((*nods*))⌋
007 (3.0)
008 L wu (0.7) what we doing with Mark ⌈ today ⌉
009 T ⌊((*v.slight f'wd head mvt*)) ⌋
010 T ⌈((*inclines head very slightly forward looking at L*))⌉
012 ⌊ (0.4) ⌋
013 T ⌈((*tilts head forward very slightly*)) ⌉
014 L ⌊ do ⌋ ya know
015 T ((*shakes head*))
016 L ⌈(4 syllables)
017 * T ⌊((*orientates to VOCA*))
018 * T ⌈((*orientated to VOCA, switching*)) ⌉ ***I'm not sure***
019 * L | ((*looking at T*)) |
020 * ⌊ (43.0) ⌋
021 L not⌈sure ⌉
022 T ⌊((*shakes head looking at VOCA, bleep heard*))⌋
023 L 'cause you're not normally in that lesson⌈are y(h)a°h
024 T ⌊((*shakes head*))
025 L ⌈what do you do normally in swimming ⌉
026 T ⌊ ((*looking at VOCA*)) ⌋
027 * T ⌈((*motionless then hits switch & bleep heard immediately*)) ⌉ *
028 * L | ((*looking at T*)) |
029 * ⌊ (0.5) ⌋
030 * T ⌈ ((*looking at VOCA then hits switch & generates a bleep*))⌉ *
031 * L | ((*looking at T*)) |
032 * ⌊ (1.7) ⌋
033 * T ⌈* ((*looking at VOCA*))
034 * L ⌊who normally takes ya

035 * T ⌈((*orientated to VOCA, switching*))⌉ **m** ((*looks to L with slight frown*))

036 * ⌊ (26.0) ⌋

037 * L ⌈ °Margaret° ⌉

038 * ⌊((*looking at T*))⌋

039 * T ((*nods head dropping forward and remains down and forward*))

040 * L right

041 * T ⌈((*begins to lift head up*))⌉

042 * ⌊ (3.0) ⌋

043 * L ⌈((*small cough turns to T*)) ⌉

044 * T ⌊ ((*lifting head back up*)) ⌋

045 * L ⌈ do ⌉ ⌈Lindsey normally take ya ⌉ ⌈ sometimes ⌉

046 * ⌊((*head stops*)) ⌋ ⌊((*head moving v.slightly up & right*)) ⌋ ⌊((*lateral head tremor, looking at VOCA*))⌋

047 * T ⌈((*head drops forward*))⌉

048 * L ⌊ does ⌋⌈ she go in the water ⌉sometimes

049 * T ⌊((*head forward and down, 2 small bobbing movements decreasing in amplitude*)) ⌋

050 * T ((*head forward and down turns right towards L and nods*)) ((* last bleep in series heard))

051 L ⌈ do you reckon she's going (0.3) today

052 T ⌊((*lifts head slightly in orientation to L*))

053 T ((*head lolls forward and down*))

054 L or don't you know

055 T ((*large shake of head*))

056 L don't know

057 T ((*small head shake*))

058 T ⌈((*raises eyebrows, lifts head looking at VOCA*))⌉

059 L | ((*looking forward*)) |

060 ⌊ (2.0) ⌋

061 L °right. °

062 T ⌈((*head hits switch and hold switch down*))⌉

063 ⌊ (1.2) ⌋

064 T ((*releases switch*)) * ⌈((*looking at VOCA*))⌉ * ⌈((*looking at VOCA*)) ⌉*

065 L | ((*looking ahead*)) | | ((*looking ahead*)) |

066 ⌊ (0.8) ⌋ ⌊ (1.0) ⌋

067 T ⌈((*looking at VOCA*))⌉ *

068 L | ((*looks at T*)) |

069 ⌊ (1.0) ⌋

070 T ⌈ ((*looking at VOCA*)) ⌉ ⌈ *

071 L |((*raises finger and then closes it into a fist*)) | ⌊ you're telling something to me

072 ⌊ (1.2) ⌋

073 * T ((*nods head dropping forward and down*))

074 * L ⌈ yeh

075 * T ⌊((*raises head up to look at VOCA switching*)) ⌈((*switching*))⌉

076 * ⌊ (23.0) ⌋

077 * L did you have a good weekend⌈ as well ⌉

078 * T ⌊((*head drops forward, looking at VOCA*))⌋

079 * ((*head drops further forward, looking at VOCA*))

080 * L yeh

081 * T ((*slight forward nod bringing head further down, closes eyes, raises head, looking at VOCA*))

082 * L ⌈what did you do over the weekend⌉

083 * T ⌊ ((*switching*)) ⌋

084 * T ⌈((*looking at VOCA*))⌉

085 * L | ((*looking at T*)) |

086 * ⌊ (3.0) ⌋

087 * L ⌈shall I um: (1.0) say some words and you stop me⌉

088 * T ⌊ ((*switching*)) ⌋((*nods head*))

089 * L ok

090 * (1.5)

091 * L ⌈ um: did ⌉ you do: (0.5)⌈ Colouring ⌉

092 * ⌊((*looks away*))⌋ ⌊((*looks at T*)) ⌋

093 * T ((*hits left head switch & nods head dropping forward chin on chest*))

094 * L did you⌈ er: do: ⌉ ⌈ Go out ⌉

095 * ⌊((*looks away*))⌋ | ((*looks at T & raises arms*)) |

096 * T ⌊ ((*swings head to right, hits right switch*))⌋

097 * T ((*small nod forward head back to right switch*))

098 * L did you go out yeh

099 * T [ʁ]

100 * L ⌈⌈ did you:: ⌉(bleeps stop)⌈ watch telly ⌉⌉

101 | ⌊((*looks away*))⌋ ⌊((*looks at T & raises eyebrows*)) ⌋ |

102 T ⌊⌊ ((*looking at VOCA*)) ⌋

103 T ((*sideways head movement & nod*))

104 L yeah

105 (2.0)

106 L did you:: (1.0) ⌈ play a game ⌉

107 ⌊ ((*forward head movement*)) ⌋

108 T ((*small forward head movement, activates switch with sideways head movement*))

109 L ⌈ no ⌉ ((*looks away/ahead*))
110 T ⌊((*lateral head movement*))⌋
111 L ⌈ ((*looking ahead*)) ⌉
112 T |((*orientated to VOCA*))|
113 ⌊ (1.7) ⌋
114 L ⌈ did you:: ⌉ ⌈ ((*looking ahead*)) ⌉
115 T ⌊((*orientated to VOCA hitting switches*))⌋ |((*orientated to VOCA hitting switches*))|
116 ⌊ (1.5) ⌋
117 L ((*looks at T*))⌈did I miss anything out
118 T ⌊((*activates right switch no bleeps*))
119 T ⌈((*looking at VOCA, hits head switch no bleeps heard*))⌉
120 L | ((*looking at T*)) |
121 ⌊ (1.5) ⌋
122 L ⌈ did you do anymore ⌉
123 T ⌊((*activates right switch no bleeps*))⌋
124 ((*sideways head movement hits head switch no bleeps*))
125 L is that the⌈only thing you ⌈did
126 T ⌊((*head drops forward*)) ⌊((*small head nod*))
127 T ((*head still down makes small nod*)) =
128 L = can I guess what you had for dinner
129 T ((*head still down smiles and makes small head nod movement*))
130 L ⌈ pie ⌉
131 T ⌊((*smiling head is raised slightly and sways left*))⌋
132 T ((*smiling shakes head*))
133 L ⌈ fish ⌉
134 T ⌊((*smiling shaking head*))⌋
135 T ((*shakes head & hits switch double click hears no bleeps*))
136 L meat
137 T ((*head drops forward*))
138 L carrots
139 T ((*looking forward head sways back & forward slightly, turns towards L small nod*))⌈((*nods*))
140 L ⌊ carrots ((*nods towardss T*))
141 L ⌈umm:
142 |((*head turns away from T*))
143 T ⌊((*starts raising head slowly*))
144 L ⌈ ((*looking away from T then turns back to face T*)) ⌉
145 T | ((*raising head slowly*)) |

146 ⌊ (2.0) ⌋

147 L roast potatoes

148 T ((*nods smiles lifts head up turning away from L slightly & hits* switch))

149 L ⌈°umm° ⌉

150 | ((*looks away*)) |

151 T ⌊((*looks at L eyebrows raised*)) ⌋

152 L ((*looks at T*)) ⌈veg

153 T ⌊((*small forward head movement*))

154 T =⌈((*holds head still looking at L eyebrows raises lifts head up very slightly and moved head forward very slightly*)) ⌉

155 L | ((*looking at T*)) |

156 T ⌊ (4.9) ⌋

157 L ((*raises eyebrows*)) °(unintelligible) °

158 T ((*small sideways head movement*))

159 L ya ↑just said you had (0.5) err carro(h)ts: ((*raises shoulders smiles*))

160 T ((*head drops forward chin ending on chest*))

161 (2.0)

162 L ↑yeh

163 T ((*head down small nod*))

164 (0.9)

165 L um:

166 T ⌈((*raises head up to between head switches*))⌉

167 ⌊ (2.8) ⌋

168 L ⌈ was ⌉ you ⌈ bored ⌉ at home or was you:

169 T ⌊((*hits switch no bleep*))⌋ ⌊((*hits switch no bleep*))⌋

170 ⌈((*orientated to VOCA*))⌉

171 ⌊ (1.0) ⌋

172 L did⌈you wanna come back to school ⌉

173 ⌊ ((*raises arms*)) ⌋

174 T ((*nods head falling forward with chin down to chest*))

175 L ((*looks away*))

176 T ⌈((*lifts head up looking at VOCA, hits switch twice*)) ⌉ * ⌈ ((*orientated to VOCA, switching*)) ⌉

177 L | ((*looking away*)) | ⌊ ((*looks at T*)) ⌋

178 ⌊ (3.0) ⌋

179 L y a g⌈un ⌉na say something =

180 ⌊* ⌋

181 T ⌈ * ⌉

182 ⌊((*small head movement forward & back*)) ⌋

183 T ⌈((*looking at VOCA, hits switch*))⌉ *

184 ⌊ (0.8) ⌋

185 L ya gonna⌈say⌉something

186 ⌊* ⌋

187 T ((*nods, looking at VOCA*))

188 L ⌈yes⌉

189 ⌊* ⌋* *

190 * T ⌈((*switching*))⌉ ***g*** ⌈((*switching*))⌉

191 * ⌊ (29.7) ⌋ ⌊ (2.2) ⌋

192 * L ⌈ g ⌉

193 * T ⌊((*switching*))⌋

194 * T ⌈(((?*small nod*?) *switching*))⌉ ***r*** ⌈((*switching*))⌉ ***e***

195 * ⌊ (12.4) ⌋ ⌊ (12.9) ⌋

196 * T ⌈((*switching*))⌉ ***e*** ⌈((*looking at VOCA*))⌉

197 * ⌊ (12.9) ⌋ ⌊ (3.2) ⌋

198 * L is there two es⌈ in it ⌉

199 * T ⌊((*head starts to drop forward*))⌋

200 * ((*nods head forward*))

201 * L yeah

202 * T ⌈((*lifts head up and continues switching*))⌉ ***n***

203 * ⌊ (4.3) ⌋

204 * T ⌈((*switching*))⌉

205 * ⌊ (2.9) ⌋

206 * L ⌈is that all the word⌉

207 * T ⌊ ((*switching*)) ⌋

208 * T ⌈((*switching*))⌉ ***green***

209 * ⌊ (0.9) ⌋

210 * T ⌈((possible *looking at L*))⌉

211 * ⌊ (1.9) ⌋

212 * L green.

213 * T ((*head nods forward*))

214 * L ⌈ ((*looking forward*)) ⌉

215 * T |((*raises head slowly*))|

216 * ⌊ (4.2) ⌋

217 * L ⌈is it something that you (wore/brought)⌉

218 * T ⌊ ((*looking at VOCA*)) ⌋ ((*sideways head movement, looking at VOCA*))

219 * L ⌈you went out and saw a green ((*raises hand*))⌉

220 * ⌊ ((*switching/looking at VOCA*)) ⌋

221 * T ((*switching*)) *s*

222 * T ⌈((*switching*))⌉

223 * ⌊ (3.4) ⌋

224 * L ⌈ o:h =

225 * T ⌊((*switching*))

226 * = (buzz from VOCA)

227 * T ⌈((*switching*))⌉

228 * ⌊ (4.2) ⌋

229 * T ⌈((*switching*))⌉

230 * ⌊ (3.3) ⌋

231 * L ⌈(you done a) a picture of green ⌉

232 * T ⌊ ((*switching*)) ⌋

233 * T ((*shakes head orientated to VOCA*))

234 * L no

235 * T ⌈((*switching*))⌉

236 * ⌊ (5.4) ⌋

237 * L ⌈um: ⌉ ⌈ (3.0) ⌈°I don't know°

238 * T ⌊((*switching*))⌋ ⌊((*switching*)) ⌊((*switching*))

239 * T ⌈ ((*switching*)) ⌉

240 * ⌊ (2.1) ⌋

241 * L do I know what it is

242 * T ((*nods*))

243 * (0.8)

244 * T ⌈ is it that cardboard thing over there ⌉

245 * L ⌊ ((*switching*)) ⌋

246 * T ⌈((*looking at VOCA*))⌉

247 * ⌊ (2.7) ⌋

248 * T °no°

249 * L ((*activates switch*))

250 * L I know what it is

251 * ((*forward head movement, remains looking at VOCA*))

252 * L is it (.) i:s it in school =

253 * T ***dinner***

254 * T ⌈((*?looking at VOCA?*))⌉

255 * L | ((*looking at T*)) |

256 * ⌊ (2.1) ⌋

257 * L gr↑een ↑din↓ner

258 * T ⌈((*small forward head movement*))⌉ ***greens dinner***

259 * ⌊ (2.4) ⌋

260 * L f°h (0.2) >what ya<

261 * T ⌈((*?looking at L small nods twice?*))⌉

262 * ⌊ (2.5) ⌋

263 * L um you had (.) um (2.7) you ha:d veg

264 * T ((*large nod forward, chin dropping to chest & sigh*))

265 * (1.1)

266 * L oh

267 * L ⌈ ((*looking forward*)) ⌉

268 * T | ((*raises head & smiles*))|

269 * ⌊ (2.4) ⌋

270 * L ⌈did you ⌉wa:tch: (1.6) ⌈any: (3.7)⌈ um: any videos ⌉

271 * T ⌊ ((*smile*)) ⌋ ⌊((*hits head switch*)) ⌊((*orientated to VOCA*))⌋

272 * T ((orientated to VOCA moves head very slightly sideways then forward))

273 * L ⌈ no you just watch telly ⌉

274 * T ⌊ ((*orientated to VOCA*)) ⌋((*head drops forward with chin dropping to chest*))

275 * L (sighs) ⌈ ((*looking forward*)) ⌉

276 * T | ((*orientated to VOCA*)) |

277 * ⌊ (8.9) ⌋

278 * L ((*turns to T*))⌈who coloured in with you ⌉

279 * T ⌊ ((*orientated to VOCA*)) ⌋

280 * T ⌈((*hits head switch and makes tiny forward head movement orientated to VOCA*))⌉

281 * ⌊ (0.5) ⌋

282 * L mum

283 * T ((*tiny lateral head movement hitting head switch then tiny forward head movement, remaining orientated to VOCA*))

284 * L dad

285 * T ((*shakes head remains orientated to VOCA*))

286 * L ⌈ mum ⌉

287 * T ⌊ ((*orientated to VOCA*))⌋ ((*nods*))

288 * L ⌈ yes ⌉

289 * T ⌊ ((*orientated to VOCA*)) ⌋

290 * ⌈ ((*looking at T*)) ⌉

291 * |((*orientated to VOCA*)) |

292 * ⌊ (1.3) ⌋

293 * L ⌈what did you colour in ⌉

294 * T ⌊ ((*orientated to VOCA*)) ⌋

295 * T ⌈((*orientated to VOCA*))⌉

296 * L | ((*looking at T*)) |

297 * ⌊ (1.8) ⌋

298 * L the homework that David gave you

299 * T ⌈((*v.slight forward head movement, orientated to VOCA*))⌉((*head drops forward*))

300 * ⌊ (1.3) ⌋

301 * L ⌈ yeh ⌉

302 * T ⌊((orientated *to VOCA*))⌋

303 * T ⌈((*sudden onset of large backward head movement, orientating to VOCA and hitting switches*))⌉

304 * ⌊ (3.6) ⌋

305 * L ⌈you gonna say something⌉

306 * T ⌊ ((*orientated to VOCA*)) ⌋

307 * T ((*raise eyebrows head moves forward, remains orientated to VOCA with head held forward*))

308 * L ⌈ you gonna say ⌉ ⌈ something ⌉

309 * T ⌊ ((orientated to VOCA)) ⌋ ⌊((*head drops further forward*)) ⌋

310 * L yeh

311 * T ⌈((*switching*))⌉ ***picture***

312 * ⌊ (32.0) ⌋

313 * L picture

314 * T ((*nods*))

315 * L you coloured⌈ in a picture ⌉

316 * ⌊((*head drops forward, chin on chest, small nod movement*)) ⌋

317 * L yeah

318 * T ((*head still forward, nods*))

319 * L ⌈ ((*looking forward*)) ⌉

320 * T |((*lifts head up raises eyebrows slightly*))|

321 * ⌊ (1.8) ⌋

322 * L ((*turns to T*)) what colours did you use

323 * T ((*stiffens her body bracing through her arms*)) [ɣ]=

324 * T ⌈((*looking at VOCA*))⌉

325 * L | ((*looking at T*)) |

326 * ⌊ (0.8) ⌋

327 * L ⌈ (5 syllables) ⌉

328 * T ⌊ ((*looking at VOCA hits head switch*)) ⌋

329 * T ((*sudden physical extension of trunk & arms rocking head back suddenly in headrest and forward & down, raises head slowly and orientates to VOCA*))

330 * T ⌈((*switching*))⌉ ***yellow***

331 * ⌊ (26.0) ⌋

332 * L ⌈ you used yellow ⌉

333 * | ((*looking at T*)) |

334 * T ⌊ ((*orientated to VOCA*))⌋

335 * T ((*head braced back up between headrest, head moved back to between switches and forward slightly*))

336 * T ⌈ ((*orientated to VOCA*))⌉ ***blue***

337 * ⌊ (24.5) ⌋

338 * L ⌈ ((*turns to look at T*)) ⌉ blue,

339 * T | ((*orientated to VOCA*)) |

340 * ⌊ (1.2) ⌋

341 * T ((*small forward head movement*))

342 * (1.0)

343 * L ⌈ yellow blue, ⌉

344 * T ⌊((*orientated to VOCA*))⌋ ((*large forward head movement*))

345 * T ⌈ ((*orientated to VOCA*))⌉ ***pink***

346 * L ⌊ (30.0) ⌋

347 * (0.6)

348 * L pink

349 * T ((*nods looking at VOCA*))

350 * T ⌈ yellow blue pink ⌉

351 * L ⌊ ((*orientated to VOCA*)) ⌋

352 * T ⌈ ((*nods & continues switching*)) ⌉ ***striped*** ((*?look to L?*))

353 * ⌊ (76.5) ⌋

354 * L you done it striped

355 * T ((*head drops forward, chin on chest*))

356 * L yep ⌈((*looks forward away form L*))⌉

357 * T | ((*head forward and down*)) |

358 * ⌊ (0.9) ⌋

359 * L °um:° ⌈ ((*looking forward away from L*)) ⌉

360 * T | ((*head raised up slowly hits head switch*)) |

361 * ⌊ (3.9) ⌋

362 * L is that all

363 * T ((*head drops forward, chin on chest*))

364 * L or you got more

365 * (1.2)

367 * T ⌈((*head moves to left*))⌉ ⌈((*head moves to right & hits switch*))⌉

368 * L ⌊ that's ⌋ ⌊ all ⌋

369 * T ⌈((*orientated to VOCA, head moves forward and back slightly*))⌉

370 * ⌊ (3.2) ⌋

371 * L ⌈ what did you ⌈do ⌉on Sunday ⌉

372 * | ⌊* ⌋ |

373 * T ⌊ ((*orientated to VOCA*)) ⌋

374 * T ⌈((*orientated to VOCA hits heat switch*)) ⌉ * =

375 * L | ((*looking at T*)) |

376 * ⌊ (1.8) ⌋

377 * L = did you go and see your sister

378 * T ((*looking at VOCA hits head switch then shakes head*))

379 * L ⌈ no: she ⌉ ⌈ came ⌈to see you

380 * T ⌊ ((*orientated to VOCA*)) ⌋ ⌊* ⌊ ((*orientated to VOCA*))

381 * T ((*orientated to VOCA hits switch with lateral movement/head shake*))* *

382 L no: ⌈ ((*looks away*)) °um: ° ⌉

383 T |((*bleeps stop orientated to VOCA*)|

384 ⌊ (1.1) ⌋

385 L ⌈ you didn't (.) go to see anyone ⌉

386 T ⌊((*orientated to VOCA tilts head up and sideways slightly and opens mouth*)) ⌋ ((*orientated to VOCA shakes head*))

387 * T ((*activates switches*)) ⌈*

389 * L ⌊ stayed indoors,

390 * T ((*nods head falling forward*))

391 * L ⌈was you in your chair ⌉

392 * T ⌊ ((*orientated to VOCA*)) ⌋((*shakes head hitting head switch*))

393 * L ⌈ you were in: bed ⌉

394 * T ⌊((*orientated to VOCA*))⌋ ((*shakes head*))

395 * L ⌈no on the settee ⌉

396 * T ⌊ ((*orientated to VOCA*))⌋ ((*nods head drops forward and stays down*))

397 * L ⌈in your little armchair ⌉

398 * T ⌊ ((*orientated to VOCA*)) ⌋ ⌈((*head forward and down turns right towards L and nods*)) ⌉

399 * ⌊ (1.6) ⌋

400 * L ⌈ um ⌉ ⌈ watching ⌉ ⌈ telly ⌉

401 * T ⌊((*raises head up swiftly*))⌋ ⌊((*hits head switch*))⌋ ⌊((*holds head still*)) ⌋

402 * T ((*head nods forward and back*))

403 * L >were ya<

404 * T ((*larger forward and back head movement*))

405 * L yep

406 * T ⌈((*head turning looks at L, raises eyebrows, orientates towards VOCA, eyebrows drop starts to smile*)) ⌉

407 * L | ((*looking at T*)) |

408 * ⌊ (3.1) ⌋

409 * T ⌈°having a right good scam° ⌉

410 * L ⌊ ((*smiling*)) ⌋

411 * T ⌈((*smiling perhaps looking at VOCA*)) ⌉

412 * L | ((*looking at T*)) |

413 * ⌊ (1.1) ⌋

414 * L ⌈ watch ⌉ ⌈ television all d(h)ay(.)h ⌉

415 * T ⌊ ((*smile drops*)) ⌋ ⌊ ((*slight smile looking at VOCA*)) ⌋

416 * T ((= *starts to smile, head nods forward slightly smiling*)) ⌈((*smiling*))

417 * L ⌊ were ya =

418 * T ⌈[ʁ]

419 * ⌊((*smiling*))

420 T ⌈((*smiling head nods forward then head lifted up to headrest*))

421 ⌊(bleeps stop)

422 T ⌈[ʁ:]

423 ⌊((*smiling head nods forward and back slightly*))

424 L ⌈ I bet you was ⌉

425 T ⌊ ((*broad smile*)) ⌋ ((*continues smiling broadly*))

426 (0.8)

427 L was ya

428 T ((*head drops forward chin on chest*))

429 (0.5)

430 T °mm°

431 (1.3)

432 T ⌈[də:]

433 ⌊((*raising head*))

434 (2.2)

435 T [o⌈ u:]

436 L ⌊show me how you did it

437 T ↑[ɲau:] !

438 (0.48)

439 L yeh you did it

440 (0.5)

441 L like that

442 T [au:] !

443 (1.9)

444 T [ə:]

445 (1.0)
446 T ((*smiles looking at L*))
447 L °lucky bugger° hfh ((*smiles shrugs and look away*))
448 L un what else did you do:
449 (0.3)
450 L what did you do on Friday 'cause I weren't here on Friday
451 (0.6)
452 L tell me
453 T ⌈((*head moves forward slightly*))⌉
454 ⌊ (1.2) ⌋
455 L on your⌈ delta talker
456 ⌊((*head drops further forward*))
457 T ⌈((*head rises back up to headrest and falls forward again remaining forward, slowly starts to raise head*))⌉
458 ⌊ (2.9) ⌋
459 L did um you go in the: sensory room
460 T ((*lateral head movement, ?looking at L*))
461 L no
462 (0.4)
463 L who wer'n in the⌈ sensory room ⌉⌈ no ⌉ one
464 T ⌊(*small lateral head movement*))⌋ ⌊((*shakes head hits switch, no bleep*))⌋
465 T ((*lateral head movement, hits switch no bleeps*))
466 L was it only Jo on 'er own
467 T ((*nods*))
468 T ⌈ ((*looking down*)) ⌉
469 L ⌈ ((*looking away*))⌉
470 ⌊ (4.2) ⌋
471 T ((*raises head hitting right switch with audible thump*)) =
472 L = ((*raises head*)) so what did you do then work
473 T ((*head drops forward chin on chest*))
474 L what all afternoon
475 T ⌈((*raises head very slightly*))⌉
476 ⌊ (0.4) ⌋
477 L ⌈ no breaks ⌉
478 T ⌊((*head nods forward*))⌋ ((*nods*))
479 L yeah you had a little:: (1.5) like (0.5) a break
480 T ((*head orientated to right towards L little movement forward and back*))
481 T so you could do what you want

482 T ⌈((*little movement forward and back*))⌉

483 ⌊ (2.2) ⌋

484 L ⌈ yeah ⌉

485 T ⌊((*sideways head movement. upward hitting switch with audible thump*))⌋

486 (0.8)

487 L I bet you said (thank you for it)

488 (1.0)

489 T ((*head drops forward*))

490 L yeh ((*looks away*))

491 T ⌈((*lifts head and orientates to VOCA, hits head switch*))⌉

492 ⌊ (4.1) ⌋

493 T ⌈((*hits head switch again not audible VOCA feedback heard hits switch again*))⌉ *

494 * L | ((*looks up at T*)) |

495 * ⌊ (2.8) ⌋

496 * T ⌈((*orientated to VOCA*))⌉ *

497 * L | ((*looking at T*)) |

498 * ⌊ (1.4) ⌋

499 * L ya gun tell me some'n

500 * T ((*nods, head stays looking down*))

501 * L wha what happened on Friday

502 * T ((*nods & head stays forward but looking at VOCA*))

503 * L right ((*immediately looks away*))

504 * T ⌈((*switching*))⌉ (***golden***)

505 * ⌊ (29.7) ⌋

506 * L (you were) (1.0) is that wrong

507 * T ⌈((*slight forward head movement, remains orientated to VOCA*))⌉

508 * ⌊ (7.7) ⌋

509 * L is that right or wrong

510 * T ⌈((*lateral head movement activating switches orientated to VOCA*))⌉

511 * ⌊ (1.6) ⌋

512 * L is that wrong

513 * T ⌈((*small forward head movement remains orientated to VOCA*))⌉ ***drink***

514 * ⌊ (12.8) ⌋

515 * (2.0)

516 * L you had a drink

517 * T ((*head drops forward chin on chest*))

518 * (2.1)

519 * L you 'ad coffee
520 * T ((*forward head movement*))
521 * L ((*looks forward and down*)) yeh
522 * T ⌈((*raises head and activates switch*))⌉
523 * L | ((*looking forward and down*)) |
524 * ⌊ (2.5) ⌋
525 * T ((*looks at T*)) ↑no
526 * ((*lateral head movement, activating switches orientated to VOCA*))
527 * L tea
528 * T ((*forward head movement chin onto chest lifts head slightly*))
529 * L ya 'ad a⌈ cup of tea ⌉ at school
530 * ⌊((*very slight nod*)) ⌋
531 * T ((*head drops down chin on chest and bobs forward & back slightly smiles starts to raise head*))
532 * L ↑oh
533 * T ⌈((*raising head smiles dropping*)) ⌉
534 * ⌊ (0.9) ⌋
535 * L ⌈ t°hh ⌉
536 * T ⌊((*orientated to VOCA*))⌋
537 * (0.7)
538 * L ⌈ un what else ⌉
539 * T ⌊((*orientated to VOCA*)) ⌋
540 * (0.6)
541 * L ⌈ did they have toast ⌉
542 * T ⌊((*orientated to VOCA*)) ⌋
543 * T ((*head drops forward chin on chest*))
544 * L did you
545 * T ((*head still forward lateral movement*))
546 * L no
547 (1.8) (bleeps stop)
548 L you had (.) sandwiches
549 T ((*head drops forward chin on chest*))
550 L ((*looks forward*))
551 T ⌈((*raises up to switches hits head switch*))⌉ *
552 L ⌊ ((*looking forward*)) ⌋
553 T ⌈((*orientated to VOCA*)) ⌉ *
554 L | ((*looks at T*)) |
555 ⌊ (1.5) ⌋
556 * T ⌈((*orientated to VOCA switching*))⌉

557 * ⌊ (6.4) ⌋
558 * T ⌈((*orientated to VOCA switching*))⌉
559 * L ⌊ °h hhh ⌋
560 * T ⌈ ((*orientated to VOCA switching*)) ⌉
561 * L |((*drops head turns to T head still bowed*))|
562 * ⌊ (2.7) ⌋
563 * L (°unintelligible°)
564 * T ((*head drops forward chin on chest*))
565 * (1.1)
566 * L °Tina°
567 * T ⌈((*raises head slightly, orientated to VOCA*))⌉
568 * ⌊ (1.1) ⌋
569 * L °do you want to talk tu (.) with ya bliss book (unintelligible)°
570 * T ((*head drops forward chin on chest*))
571 * L yeh
572 * T ⌈((*switching*))⌉
573 * ⌊ (5.8) ⌋
574 * L (unintelligible)
575 * T ⌈((*orientated to VOCA using head switches*))⌉
576 * ⌊ (15.7) ⌋
577 * ((*chairs crash together as T reverses*))
578 * L shh ((*finger to mouth*))
579 * (1.04)
580 * that mean your turning round
581 * T ((*nods*))
582 * L come back where you were 'cause you just knocked me flying
583 * ((*adult enters room*))

Appendix 4

Transcript of conversation Martin and David

Martin & David

001 A I'm off (.) I'll see you in a minute

002 *((adult leaves room))*

003 M [hʌh]

004 D bu'bye (0.2) go un'ave⌈a cup ⌈of coffee while your at it ⌉⌉

005 ⌊*((looks to M))* | *((looking at M))* |⌋*((looks back to door))*

006 M ⌊ [æ::] ⌋

007 B ⌈hi Mark ⌉

008 ⌊voice heard addressing adult outside the room ⌋

009 D ⌈oo⌈oohhh ⌉

010 ⌊*((d urns to M smiles))*⌋*((l o o k I n g a t M))*

011 M |[æ:hhæ:] ⌉

012 ⌊*((smiling looking at D))* ⌋ *((looks down))*

013 D ⌈go on you start ⌉

014 ⌊*((looking at M hand, small right hand point to VOCA occurring at waist level & arm not extended))*⌋

015 M ⌈ *((looks at D))*⌉ [eə:]↓[æ:h]

016 ⌊ (0.52)

017 D ⌈you °start°

018 ⌊*((lifts hand next to M's face))*

019 M ⌈[ej]↑[æ:] ⌉

020 M ⌊*((hand moves to M's face directing gaze to VOCA))* ⌋ *((hand stays on M's face moving head into midline))*

021 M ⌈*((turns to look at VOCA))* ⌉

022 D ⌊*((hand comes away from M's face))*⌋

023 D °go on°

024 M ⌈*((orientates to VOCA& starts switching))*⌉ * ⌈*((switching))*⌉ * ⌈*((switching))*⌉

025 ⌊ (6.5) ⌋ ⌊ (5.9) ⌋ ⌊ (9.7) ⌋

026 M *⌈*((turns and looks at David))*⌉ ***D*** ⌈***a p h n e*** =

027 ⌊ (0.3) ⌋ ⌊*((starts to smile))*

028 D = *((looks at M))* =

029 M =*((raises out of seat looks up raising eye brows))*=

030 M = [eə: ⌈ æhh] . ⌉ ⌈[eɪjə: :] ⌉

031 D | yeh: Martin | |I know |

032 ⌊*((looks down))*⌋ ⌊*((looks back to M))* ⌋

033 M ⌈*((returns to seated position looking at D))*⌉

034 ⌊ (1.1) ⌋

035 D oi Martin b⌈u

036 M ⌊[jɑ:h:]

037 D can I tell you something

038 M [je:⌈h:] ⌉

039 D ⌊(3 syllables)⌋ (no-one's still coming no)

040 (1.0)

041 D (seem to be)

042 M [eə]

043 D °I love (Brenda)°

044 M ⌈[hʌetʒæ] ! ⌉

045 ⌊((*goes into extension and returns to seat rise & fall in prosodic contour matched rise and fall in body position*))⌋

046 D I told 'er (.) I told Brenda

047 M ⌈((*right hand moves across placed on D' hand then M turns head fully toward D*))⌉

048 D | ((*looking at M*)) |

049 ⌊ (1.6) ⌋

050 D ⌈ (°go on°) ⌉

051 ⌊((*nods at M*)) ⌋

052 M ⌈((*lips moving back & forward, looking at D*))⌉

053 D | ((*looking at M*)) |

054 ⌊ (3.1) ⌋

055 M °h (.) [h:]

056 D sh ⌈

057 M ⌊[ʕ]

058 D she's starting (.) Daphne's starting to learn

059 M [eɪ:⌈æ:ɜ: : : ɹæ]

060 D ⌊I won't (.) I won't tell her

061 M ⌈((*looking at D mouth open wide & changes mouth shape slightly*))⌉

062 ⌊ (2.1) ⌋

063 D ⌈ why ⌉

064 M ⌊((*looking at D with open mouth*))⌋

065 D (.) <u>no wa</u>⌈<u>y</u>

066 M | [ɹæ:əʔ] !

067 ⌊((*leaning out of chair toward D*))

068 M ((*turns slightly away from D orientating toward midline & breaking mutual gaze with D*))

069 D go on ((*taps M on the shoulder twice*))

070 M ⌈((*moves head between headswitches, audible exhalation, first activation of switch heard*))⌉
071 ⌊ (1.5) ⌋
072 M ⌈((*switching*))⌉ * ⌈((*switching*))⌉ * ***I***
073 ⌊ (4.2) ⌋ ⌊ (1.6) ⌋
074 M ⌈((switching))⌉ * ⌈ ((*switching*)) ⌉
075 ⌊ (1.3) ⌋ | (5.2) |
076 D ⌊((*turns away from M*))⌋
077 D ⌈ Mark's outside ⌉ ⌈the door ⌉ =
078 ⌊((*turning back to M*)) ⌋ ⌊((*facing M leans slightly into M*))⌋
079 M =((*glances to door*)) ⌈((*turning back to VOCA*))
080 D ⌊
081 M ⌈((*brief smile and continues switching*))⌉ * ***like***
082 ⌊ (1.7) ⌋
083 M ⌈((*smiles and looks at D*))⌉
084 ⌊ (2.1) ⌋
085 D guess who
086 M ((*smiling*))
087 D you like Daphne as well
088 M [heəhə]
089 D as much as me
090 M [heəː]
091 D ((*nods*))
092 (1.0)
093 D uːm
094 (0.7)
095 D would you like (.) >YEAH BUT I THOUGHT YOU SAID YOU DON'T LOVE HER<
096 M [heəh] (0.3) [jeaːəː⌈ ɜː ː hɜː ː ː ː ː ː ː ː⌋] ⌉
097 D ⌊ we both (.) we both love ⌋ 'er really
098 M [hæɪ] (.) ((*head drops down to left side face still facing forward M holds his position*))
099 (1.0)
100 M ⌈ [h∧h] ⌉
101 ⌊((*head flops to left smiling looking forward*))⌋
102 D und ⌈h ⌉
103 M ⌊[ɹe⌋ æh]
104 D °she's got nice°=
105 M =↑[eɹeəhəhə⌈hː]
106 D ⌊ she's got nice ⌈legs un that (.) ⌈ini-

107 M ⌊[eəɹh] ⌊[eə:]

108 M ↓[ə:]

109 D nice (.) b⌈um

110 M ⌊↑[æəɹeæ:ɜ]

111 D ((*smiles and moves left hand rapidly*))

112 M [ehəhəhə heəh:]

113 D (h)nice =

114 M =°h [he?] ((*looks down at lap and back to* D)) [hə]

115 D yeah

116 M ⌈[ehæh:] ⌉

117 D ⌊ ((*look away*))⌋ ((*looks back to M*)) anything else

118 M [h:æ::jə]

119 D ⌈ (°unintelligible°) ⌈ (°unintelligible°)

120 ⌊((*gestures moving hand up and down legs & looks at M*)) |

121 M |[jɜ:ɹæ] ⌈ [hə]

122 ⌊((*extending* | *in chair raising self up*))

123 D ⌊ hu

124 D I know you have her in⌈ club(.) but⌉

125 M ⌊ [jæə:] ⌋

126 D sometimes she helps me in swimming on Mondays

127 M [hɜ] ↑[æ] [ɜ:]

128 D ((*leans in to talk into M's ear*)) (°I get to°) =

129 M = [æ:] ⌈↓[ʊ: ::] (.) ↑[æ: ʊ] ⌉

130 D ⌊ I get to look throu ⌋ gh° (.) no! h(.)hhh=

131 M =⌈huahu⌈huhu ((*lifts up out of chair*)) [hə⌈ɑɹ:hɑ]

132 D =⌊ ⌊hehehehehe ⌊huuhuh

133 M [hə])↑[ɹʊɑhə⌈ hɑ:]

134 ⌊((*turns to D*))

135 D ⌈(h)anything m(h)ore you wanna say

136 M ⌊[hɑ:] huhu

137 M ((*looks down at lap, looks up smiling broadly*))⌈((*looking at D*) ⌉

138 D ⌊((*looking at M*))⌋

139 M ((*leans back slightly*))⌈ ↑[eəhɑhʊɹɑ:] (.) [hɜ:]

140 ⌊((*shakes head smiling*))

141 D does your (.) ⌈((*gestures with both hands moving in parallel up from lap*))

142 M ⌊↑[æhəhəhɜ]

143 (0.4)

144 D does it (.) ((*repeats gesture with both hands in parallel moving vertically up from lap*))

145 D ((*hands reach top height of raising*)) ⌈((*hands move in parallel back down to lap*))

146 M ⌊[ɑ: : ɜ: : æ]

147 D ⌈((*looks forward and back to M*))⌉

148 ⌊ (1.5) ⌋

149 M °[B]°

150 (0.5)

151 D does your (.) you asking m⌈e do my⌉

152 M ⌊ °[B]° ⌋

153 M ⌈((*looking at D*))⌉

154 ⌊ (0.6) ⌋

155 D d'know

156 M [hæɜ::]

157 D yeah it doh

158 M [ve:ʔ] (.) [bə]

159 (0.9)

160 D um⌈((*looks at VOCA*))⌉ anything

161 ⌊ (1.0) ⌋

162 D ⌈ more ⌉ ⌈ about ⌉ (.)⌈ that person ⌉=

163 ⌊((*nods at VOCA*))⌋ ⌊((*turns to M*)) ⌋ ⌊((*looking at M*)) ⌋

164 M =[ɑ:hə]

165 M ⌈((*orientates to VOCA*))⌉ ⌈((*starts switching*))⌉

166 ⌊ (2.7) ⌋ ⌊ (4.0) ⌋

167 M ⌈* ***to talk*** ((*glances up mouth open then back to VOCA*))⌉

168 D ⌊ ((looking at M)) ⌋ (2 syllables)

169 M ⌈((*switching*))⌉ * ⌈⌈((*switching*)) ⌉ * ⌈((*switching*))⌉⌉

170 ⌊ (3.1) ⌋ ⌊⌊ (6.6) ⌋ ⌊ (1.6) ⌋⌋

171 D ⌊ ((*looking at camera*)) ⌋

172 M ((*starts turning to D*)) ⌈* ***f*** ⌉ =

173 ⌊((*looking at D*))⌋

174 M ⌈((*raises up in seat looking up opens mouth*))⌉

175 ⌊ ((*looking at M*)) ⌋

176 D ⌈yeah (.) ⌈I would though M⌈ a r ⌉tin I ⌈would

177 M ⌊((*at peak of motion*)) ⌊[həʔ] ⌊[eʔ]⌋ ⌊[ɜ:]

178 ⌊((*returning to seat*))

179 D I would (.) what about you

180 M [djɑ:e? h⌈ ɜ:]

181 D ⌊ everyday

182 M [jɑ:? hə?] hhh⌈hhh ⌉

183 D ⌊huhuhuhu:⌋

184 M [hə]

185 D ((*turn back to look at M*)) >everyday °night°<

186 M huhuhu↑

187 D ⌈ anymore ⌉

188 ⌊((*looking at M*))⌋

189 (0.6)

190 M ((*starts to turn to VOCA*))

191 M ⌈ ((*switching*)) ⌉ *

192 D |((looking at M, glances to VOCA and back to M, then back to VOCA looking closely at interface))|

193 ⌊ (6.1) ⌋

194 M ⌈ ((*switching*)) ⌉

195 D |((*looking at VOCA*))|

196 ⌊ (0.7) ⌋

197 (doorbell outside room rings)

198 M ⌈ ((*switching*)) ⌉

199 D |((*looking at VOCA*))|

200 ⌊ (0.8) ⌋

201 D shh ((*looks at M*))

202 M ⌈ ((*switching*)) ⌉ *

203 D |((*looks at camera looks at door looks ahead looks at camera*))|

204 ⌊ (9.0) ⌋

205 M ⌈ ((*switching*)) ⌉

206 D |((*looks at VOCA, looks past M*))|

207 ⌊ (3.3) ⌋

208 M * ⌈((turns to D smiling))⌉ ***baby***

209 ⌊ (0.3) ⌋

210 D yes Martin=

211 M =[ɑjɑ:]

212 D would you

213 M [ɑhjɑ:] (.) ⌈[ɑ:ɹə]

214 ⌊((*turns away from D*))

215 D but she⌈ain't got (.) (sh: that)⌉ (.) she ain't got a boyfriend yet °so° =

216 M ⌊ [æɜ: : : : : :] ⌋

217 ↑[ɑɹ:heɪ]

218 (1.3)

219 M [æ:] ↑[ə⌈ʊ:]

220 D ⌊all in good time Martin

221 (0.4)

222 D ⌈all in good time⌉

223 M ⌊[hə: : : : : : : :ɜ:]⌋

224 M ⌈ [jɜeɪæ:] (cough) ⌉

225 D ⌊ ((*looks to door & back*)) ⌋

226 M [jeɪʊ:]

227 (2.3)

228 D um

229 (2.2)

230 D ⌈no ⌉

231 ⌊((*downward wave gesture toward VOCA*))⌋

232 (2.8)

233 M [dəʊɹɜə]=

234 D = would you like to go to her house

235 M ⌈↑[ɑeɪɑɹʊæ] ⌉⌈[hə] ⌉

236 ⌊((*rises in chair and looks up*))⌋⌊((*reaches peak of extension with little burst of movement*))⌋

237 D ⌈yeah man ⌉

238 M ⌊((*returning to neutral position looking at D*))⌋ ⌈ ((*looking at D*))⌉

239 ⌊ (1.4) ⌋

240 D go up in her bedroom

241 M ⌈↑ [æɑ] ⌉ [heaə]

242 ⌊((*broad smile*)) ⌋

243 D would ya

244 M [njeə] ⌈ ((*looking at D*)) ⌉

245 D |((*D looks around then looks back to M, leans toward and stretches toward the VOCA then changes direction*)) |

246 ⌊ (3.5) ⌋

247 D would you (0.5) ⌈ take >y'know<

248 ⌊((*looks at M smiling*))

249 M [hɑ]((*leans close to D smiles drops*))

250 D ⌈((*looking at M*))

251 M ⌊((*looking at D leans close to D, smile drops, maintains eye gaze*)) ⌉
252 ⌊ (2.5) ⌋
253 D ((looks down)) um ⌈(cough)
254 ⌊((*makes eye contact with M again*))
255 M ⌈[heə] ⌉
256 ⌊((*smiles*)) ⌋
257 M ⌈((*from looking at D, M glances to the video camera and then back to D*)) ⌉
258 D ⌊ ((*reaches toward VOCA looking at it*)) ⌋
259 D use that ⌈((looking at VOCA *pats VOCA*)) ⌉ ⌈ ((*looks at M*)) ⌉
260 M ⌊ ((*looking at D*)) ⌋ ⌊((*looking at D*)) ⌋
261 D ⌈((*pulls hand back to pat VOCA*)) ⌉
262 M ⌊((*raises eyebrows and glances up*)) ⌋
263 D ⌈((*hand moves back toward VOCA*)) ⌉
264 M ⌊ ((*gaze lower to D*)) ⌋
265 D ((*looks behind to location of door*))
266 D ⌈ use ⌉⌈ that ⌉
267 ⌊((*turning back to M*))⌋ ⌊((*looks at M*)) ⌋
268 D ⌈((*looking at M*)) ⌉
269 M ⌊((*looking at D*)) ⌊
270 ⌊ (1.0) ⌋
271 D ⌈your liberator ⌉
272 M ⌊((*looking at D*))⌋
273 M ((*looks up raising eyebrows*))
274 D ⌈(°about me) (4 syllables))but have you ever°)=⌉
275 ⌊ ((*mimics raising head*)) ⌋
276 D = NO! of course I⌈wouldn't do that⌉
277 M ⌊ ((*smiles*)) ⌋
278 D I know Martin but (.)⌈↑video ↓camera ⌉
279 ⌊((*leaning in to Martin gestures to camera*)) ⌋
280 M ((*smile*)) [h:⌈e] ((*looks at camera*))
281 D ⌊nehuhu
282 M ((*turns back toward D*))⌈[eɹə] ⌉
283 ⌊((*eyebrow flash*))⌋
284 M [ɑ:⌈eɑ]
285 D ⌊I wo:uld but (0.3) >y'know<
286 ⌈((M&D *look at each other*))⌉
287 ⌊ (1.0) ⌋

288 M ⌈ [eɪ↓ʊ:] ⌉
289 ⌊((*eye gaze flicks down and back up to look at D*))⌋
290 ⌈((*M&D look at each other*))⌉
291 ⌊ (0.6) ⌋
292 D ⌈°has she asked me ⌈out ⌈ (.) recen°
293 M ⌊ ((*looking at D*)) ⌊((*starts to smile*)) ⌊((*smiling at D*))
294 D (.) hhh ↑WE:ll.hh <u>NOT</u> exactly but (.) y'know s=we're⌈ getting along ⌉
295 M ⌊((*leaning towards looking at D*))⌋
296 D ⌈((*looking at M drops hands into lap and smiles at M*)) ⌉
297 M | ((*looking at D and smiles back simultaneously*)) |
298 ⌊ (1.0) ⌋
299 M °[əh]° ⌈((*head turns slightly to right*)) ⌉
300 ⌊ (1.5) ⌋
301 D anything on you and Daphne yet
302 M ⌈((*turns head slightly back toward D starts smile*))⌉
303 ⌊ (1.0) ⌋
304 D any (0.4) y'know (.)⌈di:velup developments ⌉ what ever it is (0.8) develop(.)ments
305 ⌊((*leans forward & brigs hands together*))⌋
306 M hh⌈hhh⌉
307 D ⌊hhh⌋⌈hhh. ⌉
308 ⌊((*looks at door*))⌋
309 (1.3)
310 D /deup/⌈((*starts turning back*)) ⌈anyway ((*looking at M*))
311 M ⌊ [hɜhəæʊ] ⌊[hə]
312 (0.2)
313 D (.)⌈any any
314 M ⌊ [hɜ:]
315 ⌈ [nɜm]
316 ⌊((*shakes head*))
317 (2.8)
318 D none
319 (1.0)
320 D she being nice to you
321 M ((*very slight forward head movement*))
322 (1.4)
323 D I saw (.) I saw her push you around
324 M [hɑ:⌈h]⌉

325 D ⌊I b⌋et you get⌈ (.) ⌉ y'know
326 ⌊((*short nods gestures upward flick of hand from lap*)) ⌋
327 D (.) don't ya Mar⌈tin
328 M ⌊[eɑɪh ⌈ eɪ] ⌉
329 D ⌊huhu⌋hu don't ya
330 D ⌈((*looks from M to VOCA*)) ⌉
331 ⌊ (0.7) ⌋
332 M ⌈((*looks at camera*)) ⌉
333 ⌊ (0.4) ⌋
334 M ⌈ [hwɜ:] ⌉
335 ⌊((*looking at camera*))⌋
336 D ((*glances to M and back to VOCA*))
337 D ⌈ you can ⌉ ⌈ use ⌉your Liberator
338 ⌊((*reaches to VOCA*)) ⌋ |((*touches VOCA hand held there and looks at M*))|
339 M | [ɜ:hə] |
340 ⌊ ((*looking at camera*)) ⌋
341 M ⌈((*turns back to look at D*)) ⌉
342 ⌊ (1.1) ⌋
343 M [ɜ:wə]
344 (0.5)
345 D why
346 M ((*looking at D wrinkles nose*))
347 D 'c⌈ause ⌉
348 M |[eə::ʔ]⌋⌈ [eə: : : wə] ⌉
349 ⌊((*looking at D flicks head to camera & back to D*))⌋
350 D ⌈((*looks up leans into M ear and whispers*))⌉ um (1.2) what you call it (.) (3 syllables)
351 ⌊ (1.0) ⌋
352 D ((*looks at VOCA reaches toward it*))
353 D ⌈thaʔ
354 M |((*arm reaching point of full extension*))
355 M ⌊[ɜjæʔɜ:]
356 D ((*looks at M*))
357 M ⌈ ((*looking at D*)) ⌉
358 D |((*looking at M starts to withdraw hand*)) |
359 ⌊ (0.3) ⌋
360 M [hɜ:]
361 M ⌈((*looking at D*))⌉

362 D |((*looking at M*))| ((*breaks mutual gaze looking down*))
363 L (1.5) J
364 D anyway
365 (2.1)
366 M [ɜ⌈ wə]
367 D L(5 syllables)
368 M [heɪ ⌈əː ɜː ː ⌈ː]
369 L((*flicks head to* |*left*))
370 D L what's she like
371 M [eə⌈ ɹː]
372 D Lwell (0.5) let me get you the ⌈full details
373 M L[æɜː]
374 (0.7)
375 D °hhhshh ((*turns head to door*))⌈Mark's been ⌉⌈(shadowing you) ⌉
376 L((*looking at door*))J L((*turning back to M*))J
377 (0.5)
378 D er any⌈way
379 M |[ɜː : : :]
380 L((*starts to look away*))
381 (1.4)
382 M [əfə]⌈ [hɜɑː] ⌉
383 | ((*looks at camera*)) |
384 D | she's good in swimming |
385 L ((*looking at M*)) J
386 D (.) ⌈ she's <u>good</u> in swimming ⌉⌈ anyway ehhhh
387 L((*follows M's gaze to camera & addresses camera*))J |((*looking at M*))
388 M |huhuhu
389 L ((*looks at D*))
390 (2.1)
391 M [bæ]
392 (1.8)
393 D she looks=
394 M =[væː]
395 D ⌈no ⌉ (6 syllables)=
396 L((*leans in to M*))J
397 M =[ɜː : :]

398 D (she seems) (.) ya know (.) ⌈(there)
399 | ((*gestures with right hand*))
400 M ⌊ [eəːɜæ]
401 (1.04)
402 D ⌈yeah
403 ⌊((*small at M*))
404 M ⌈[jeəh] ⌉
405 ⌊((*sharply sits upright between head switches hits switches in process but VOCA not activated*)) ⌋
406 (2.08)
407 M ⌈[hə] ⌉
408 ⌊((*looking at D*))⌋
409 D how comes
410 (1.04)
411 D >(how comes she got) changed< (.) it wouldn't matter
412 M [æɪæ əhəhə]
413 D anymore (0.3) on ⌈(0.9) ⌉ ⌈your old (0.8) doo ⌉
414 | | ⌊((*reaches out & pats VOCA*)) ⌋
415 M ⌊°hh° ⌋
416 M [hɜː]
417 D ⌈((*looking at M*)) ⌉
418 M | ((*looking at D*)) |
419 ⌊ (0.8) ⌋
420 D anymore
421 M ⌈((*leaning toward D turns head slightly away from D small sideways head shake movement looks back at D*))⌉
422 ⌊ (2.6) ⌋
423 M ⌈ [vɜːɹæʔ] ⌉
424 D ⌊((*turns away from M looking in direction of the door*)) ⌋
425 D ((*turns and looks back at M*))
426 M [əː]
427 D erm ((*turns back to look toward door*))
428 M [hvɜæːhː]
429 D ⌈((*looking toward door*)) ⌉ ⌈ ((*turns to M*)) ⌉
430 ⌊ (0.8) ⌋ ⌊ (1.8) ⌋
431 D sometimes⌈right ⌉
432 M ⌊[hɜh]⌋
433 (0.54)
434 M [jɑæ]

435 D this is all about Daphne I suppose is it

436 M [nəeɪəh ⌈h:]

437 D ⌊um:

438 (0.8)

439 D we:ll (.) she's alright (.) y'know as a person⌈(.) as (.) relationship I guess ⌉

440 M ⌊↑[ɜ: hə:: hə : :] ⌋

441 (1.04)

442 D y'na (.) I don't (.) ⌈(°1 syllable°)

443 M ⌊↓ [həɜ: : : :]

444 D you got anything to say Martin

445 M [hæɪ:h] ((*stretches up raises off seat mouth opened wide, drops slightly in seat becoming stationary looks at D*))

446 (1.0)

447 D well I would but I (.) y'a know

448 M ⌈[æɜlɜ::æʔæɜ::⌉ ⌈æɹ: : : : : :]

449 D ⌊ (2.1) ⌋ ⌊I would

450 (4.0)

451 D I⌈would⌉

452 M ⌊[əɜh]⌋

453 (1.0)

454 D how about (.)⌈you

455 M ⌊[eveɪ]

456 (2.1)

457 M [və]

458 (1.0)

459 D um: (0.8)⌈yeah it was good in swimming today though anyway⌉

460 ⌊ ((*moves hand to own face & rests chin in hand*)) ⌋

461 (2.5)

462 M [eɪævbəʊ:]=

463 D = d'you have good times

464 M [ɜ: : ⌈:h]

465 D ⌊uh (.) d'you gave good times

466 M [heɪəh]

467 (1.7)

468 M [jɜ: :]

469 (.)

470 D °um°

471 M [e]

472 D um: anyway

473 M [e:həhə⌈hə]

474 D ⌊eh h h h um:

475 D ⌈((*looks to door & back to M*))⌉

476 M |((*M looking in D's direction*))|

477 ⌊ (1.96) ⌋

478 D ⌈(° unintelligible °)⌉

479 ⌊ (1.1) ⌋

480 M ↑[eh:⌈ eja⌉ ej⌈hɑ:]

481 D ⌊ehh⌋ ⌊hn:

482 D 'un this

483 M ⌈ [hɜ:] ⌉

484 ⌊((*smiles*))⌋

485 (0.5)

486 D °you got anymore°

487 M ↑[fvæh] ↑ [ɑ]

488 (0.8)

489 M [əv] ↑[ɑ:] ↓[ɪjɑ]

490 (1.7)

491 M ⌈ [aɑʊ] ⌉

492 |((*looks at camera*))|

493 D ⌊ ((*opens mouth*)) ⌋

494 D >what's she like< in class

495 M ((looks at D)) [enjæ]

496 D you want to know the glory details⌈do ya Martin⌉

497 M ⌊ [ejæ:] ⌋

498 D ⌈ she's ⌉ alright (.) sometimes we have a bit of (.) fun=

499 M ⌊°[ejɜ:]°⌋

500 D = ⌈y'know a laugh ⌉(0.6) joke

501 M ⌊↑[ɜeə: : : : :]! ⌋

502 (1.1)

503 D all that kind of s⌈tuff

504 M ⌊↓[ɜ: : :]

505 D °uh°

506 ⌈((M&*D looking at each other*))⌉

507 ⌊ (1.4) ⌋

508 D >what she do<

509 M ⌈((*just starts to smile*))⌉

510 ⌊ (0.5) ⌋

511 D ⌈↑never you ↓mi:nd

512 ⌊((*smile opens up*))

513 M [hɜ] ↑[eə] ↓[ɪ]

514 D ⌈((*leans back in chair*))⌉

515 ⌊ (2.3) ⌋

516 M [eəɪ]

517 D but me 'un Daphne have our (.) ups⌈ 'un downs ⌉=

518 ⌊((*looks at M smiling*))⌋

519 M =[ehɪ]

520 D eh (.)⌈hhhhh

521 M ⌊hhhhhhh

522 M ⌈hhhh

523 D ⌊hhhhhh are well

524 M ⌈[ɑm] ⌉ ⌈[ɑ] ⌉

525 | ((*leans toward D looking at him hand reaches and touches D's chair*))| | ((*looking at D*))|

526 D ⌊((*looking ahead*)) ⌋ ⌊((*turns to M*)) ⌋

527 M ⌈ ((*looks at D*)) ⌉⌈((*looks down toward lap*)) ⌉

528 D |((*looking at M*)) |

529 ⌊ (0.8) ⌋

530 D no

531 M ⌈((*nodding toward lap*)) ⌉

532 D ⌊ ((*looking at M*)) ⌋

533 M ⌈ ((*nodding toward lap*)) ⌉ ⌈ ((*looking down*)) ⌈ [ʃʊ]

534 D ⌊ sometimes were having ⌋ ⌊ a joke 'un sometimes (.) have 'un ar⌊gument

535 M ⌈((*looks toward D*))⌉

536 ⌊ (1.0) ⌋

537 D ⌈((*looking at M*)) ⌉ shouts

538 M | ((*looking at D*))|

539 ⌊ (0.7) ⌋

540 M ⌈ [ɜæ ɜ: ⌈ ə : : :] ⌉

541 ⌊((leading toward & looking at him)) | |

542 D ⌊what is it like tod ⌋ay (0.6) just perfect ⌈ thanks

543 M ⌊[ɑhʊːhə]

544 D ((*looks to door*))

545 D ⌈god help us if she walks ⌉(.)⌈p p (h)ast! ⌉(.)⌈ yuh yuh ⌉

546 | ((*turning back from door*)) | | ((*looking at M*)) | | ((*looking at M*)) |

547 M ⌊ ((*looking down*)) ⌋ ⌊((*starts looking up*))⌋ ⌊((*sitting up smiling*))⌋

548 (.)

549 M [ɑː : :⌈əɑː : :]

550 D ⌊(2 syllables)

551 (1.0)

552 D god help us

553 M [əh⌈ɜː ⌉:] (.) [ɜː] ↑[ɜː] ↓[hɜː]

554 D ⌊rhr⌋

555 (1.0)

556 D um: (1.0) <u>but she's alright in herself</u>

557 M [ʃʊ⌈hː]⌉

558 D ⌊hu ⌋uɹː

559 (0.9)

560 D she getting on better (though)

561 M [dʒeɹeɪ]

562 M ⌈((*sits up and looks at camera, right arm stretched out waves a little*))⌉ [həʊ]

563 D | ((*puts glasses on and sits up , looks at M*)) |

564 ⌊ (6.4) ⌋

565 D ((*takes Martin's arm by the wrist*))

566 M ⌈ [ɜfəʔ] (.) [hɜ] ⌉

567 ⌊((*looking at camera, pulls hand away*))⌋

568 D is that

569 (1.3)

570 D °any more°

571 (1.4)

572 M ⌈[wəwə] ↑[æː] ↓[æː] ↑[æː] ⌉

573 | ((*looking at D*)) |

574 D ⌊((*looks to door, looks back to M*))⌋

575 D um:

576 M [ŋː] =

577 D = do you wish she was in your class

578 M [əh]

579 (0.9)

580 D d'you thinks she might be moving up next year

581 (1.0)

582 M [hɜː⌈ ː]

583 D ⌊might! (.) I don't know and I might ⌈(be)

584 M ⌊[eəː]

585 D I don't know

586 M [hə] ((*rapidly glances down to self and back to D*))

587 (1.2)

588 D you are

589 M ((*turns away from D frowning*))

590 D yeah⌈ I know but ((*glances at VOCA*))

591 M ⌊* ((*VOCA activated by hand*))

592 you're going in Miss Worthington's (0.6)⌈classroom

593 ⌊((*looks at camera*))

594 (1.9)

595 D you get lots of homework

596 D ⌈((*looking at M pulls on M's chair*)) ⌉

597 M ⌈⌊ ((*leaning to left side looking away*)) ⌋ ((*starts turning toward D*)) ⌉

598 ⌊ (3.8) ⌋

599 D ⌈ um ⌉ ⌈((makes eye contact with M)) ⌉

600 M ⌊((continues turning))⌋ ⌊ ((makes eye contact with D)) ⌋

601 M °[hɜədəm]°

602 D what's it like up that end

603 M °[esɪ]°

604 D what's it like

605 M ⌈((*eye contact with D & looks down*))⌉

606 D | ((*eye contact with M*)) |

607 ⌊ (2.2) ⌋

608 D it's alright (.) you get lots of homeworks

609 (1.0)

610 D and I tell you something (.) I ain't got none yet

611 (1.1)

612 D I have since I been up there but none today

613 (1.0)

614 D an also⌈ (0.5) ⌉

615 M ⌊((*lifts head up to left looking up*))⌋

616 D don't⌈(0.5)

617 M ⌊((*turns toward D*)) [æeə⌈ə:]

618 D ⌊oh yeaherherha

619 D (.) um⌈let me just finish answer your question

620 M ⌊°[h ə:]°

621 D you don't⌈get it⌉(.) the first week

622 M ⌊[hɜ]⌋

623 M ↑[weɪ]

624 D why 'cause you just moved up

625 (0.8)

626 M [æɜ:æ]

627 D but then the second week oh boy⌈oh boy huhu

628 M ⌊[æɜ: : :æɜ: : æ:]

629 (1.2)

630 D um ((*looks down*))

631 M [ævɹæ]

632 D ⌈((*looks up at M*))⌉

633 M ⌊((*looking at D*)) ⌋

634 M [əhə]

635 D ⌈ is that the end now ⌉

636 ⌊((*leaning forward and looking close into M's face*))⌋

637 M [hʊɪ]

638 D is that the end

639 M ((*looks at camera & small smile*)) ⌈[hə]

640 D ⌊shall I call Mark ((*turns to door*)) Mark!

641 (1.0)

642 D come in⌈:

643 M ⌊[ɑhə: : : ʊeə]

644 M ⌈ [həæ: :]⌉

645 D ⌊he's gone⌋

646 M [æ: :] ((*turns to left*))

647 ((*adult enters room*))

Appendix 5

Recruitment and consent procedures

It has been noted that the children using communication aids participating in this study were identified initially through recruitment procedures carried out as part of the CASTLE project (McConachie et al. 1999). Ethical approval for the CASTLE project was gained from the research ethics committee of the Institute of Child Health and Great Ormond Street Hospital for Children NHS Trust and relevant local research ethics committees. The CASTLE project conducted a total population survey of children using communication aids in six education authorities in London. Twenty-three children were recruited to this study (see page 64). Parent(s)/carer(s) were contacted and consent sought for participation in the CASTLE project by children's Speech and Language Therapists on behalf of the CASTLE project.

It was from the cohort that children recruited to the CASTLE project that children were approached about possible participation in this study of peer interaction. Ethical approval for this study of peer interaction was also gained from the research ethics committee of the Institute of Child Health and Great Ormond Street Hospital for Children NHS Trust and relevant local research ethics committees. The researcher had made contact with parent(s)/carer(s) through the CASTLE project so that it was possible to write to parent(s)/carer(s) directly to seek consent for their child's participation in this study of peer interaction. After having obtained parent(s)/carer(s) consent the children were approached directly. Reasons for the study and their involvement in it were explained including the video recording activity. This discussion took place between the child, a member of school staff, typically the child's Learning Support Assistant or Speech and Language Therapist, and the researcher. The explanation and discussion was supported by the use of graphic symbol based information booklets (see below). The children were told that they could respond now or discuss the study with others before responding. Once children's consent had been gained they were asked to nominate another child with whom they wished to make the video recording.

The parent(s)/carer(s) of the nominated peer were contacted by the school on behalf of the study. After parent(s)/carer(s) consent had been gained the study was discussed with the children individually. Again, a symbol based information booklet was used to support the discussion and the children's decision making.

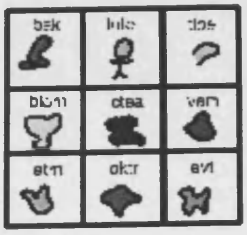
Video procedure

The episodes of interaction analysed in this study were those that took place when the children had been left on their own on the understanding that the researcher would return shortly. The video camera was fully visible to the children, being mounted on a tripod approximately three to four metres away. The video was left on and recording at this time with the explicit consent of the children. Therefore, children's conversations were conducted in the full knowledge that they were being video recorded and that the video recordings were being made for a study of interaction between children using communication and their peers. The participants were also offered an opportunity to view the video and retain a copy of the recording.

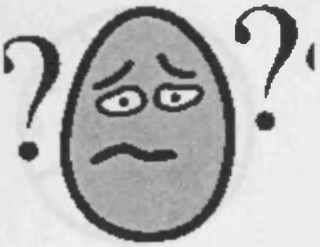
Information and consent for children using communication aids

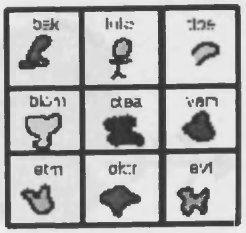
Some children have difficulty speaking.

These children use communication aids (AAC)

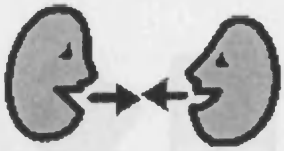


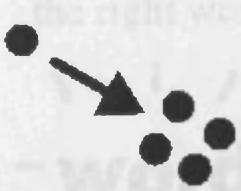
Some children have problems using AAC



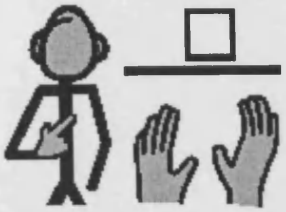


and talking with their friends

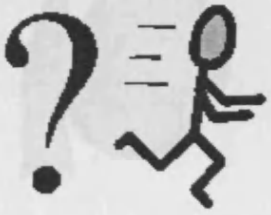




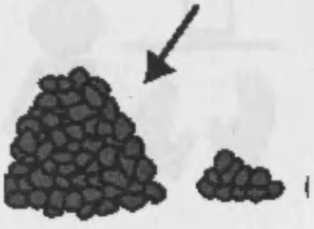
We want to understand why

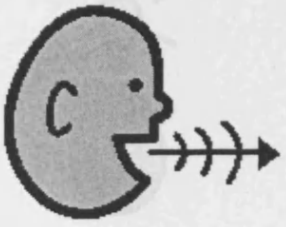


Are people in a hurry to talk?

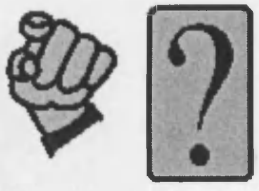


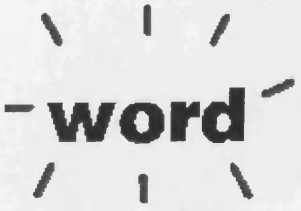
Do you need more time to talk?

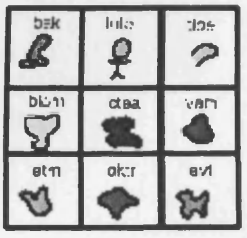




Do you have the right words on your AAC?



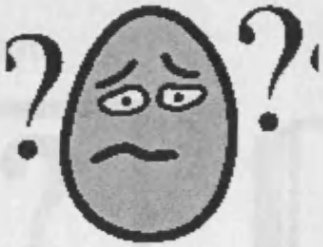




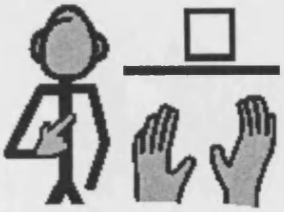
We want you to help us -



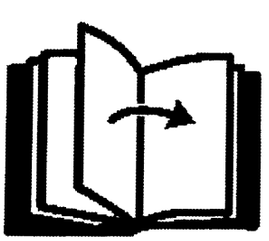
find out what the problems are.

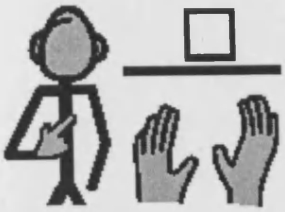
We want your ideas.



What next?



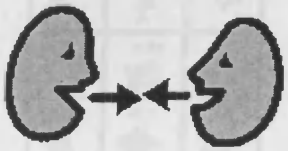
We would like



to video

you

talking to



a friend.

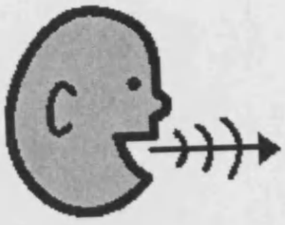
You

can choose

which friend.

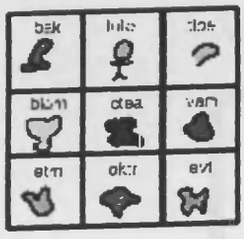
We would like

to talk to

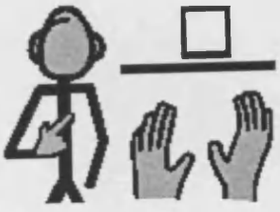


you about

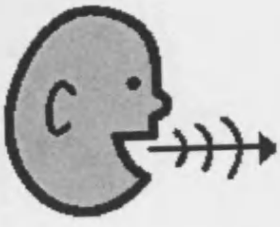
your AAC



We would like

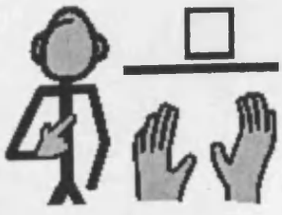


to talk to



your friend.

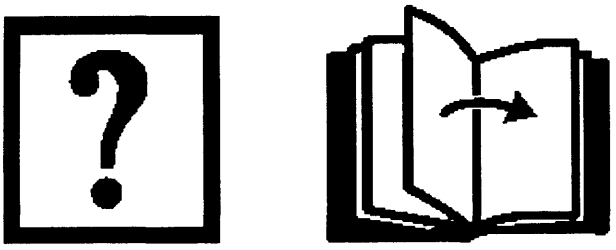
We would like



your friend's

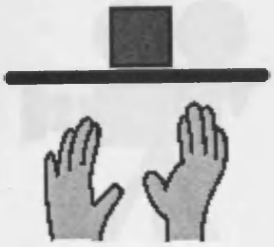
ideas.

What next?



You can choose to work

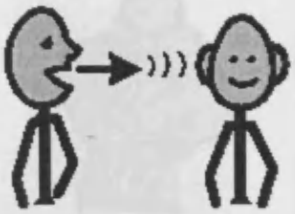
with us - if you want. -



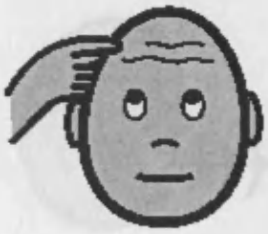
If you don't want to work

with us that's ok.

Tell us



what you think.

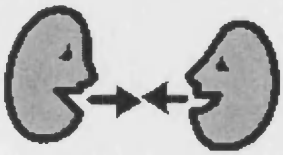


You can

video

me

talking to



a friend

YES

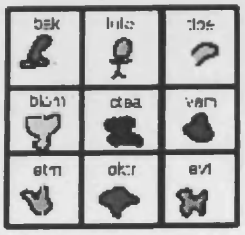
NO

You can

talk to

me about

my communication aid



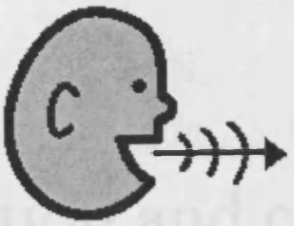
yes

YES

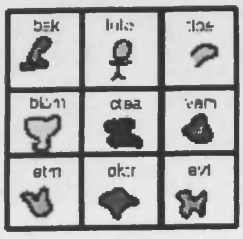
no

NO

You can talk to a friend about



my communication aid



yes

YES

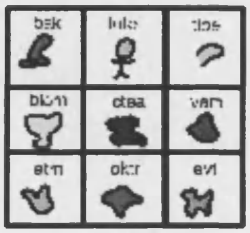
no

NO

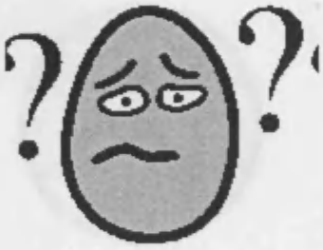
Information and consent for naturally speaking peers

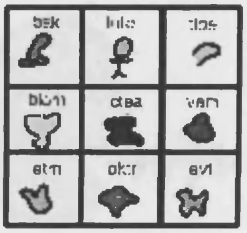
Some children have difficulty speaking.

These children use communication aids (AAC)

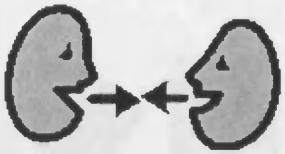


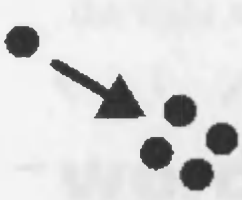
Some children have problems using AAC



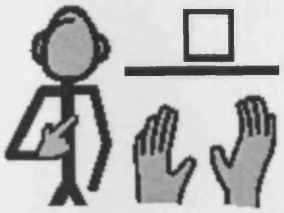


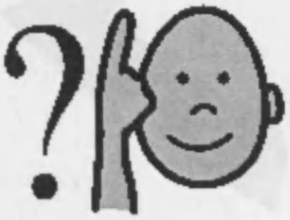
and talking with their friends



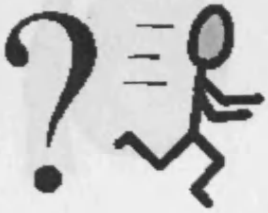


We want to understand why

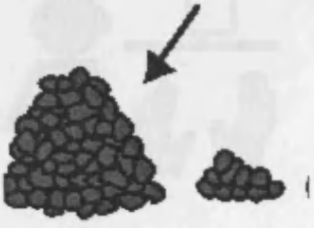




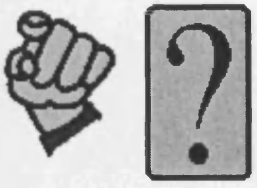
Are people in a hurry to talk?

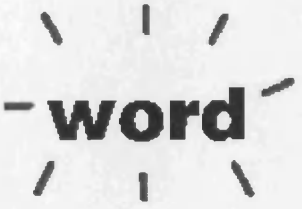


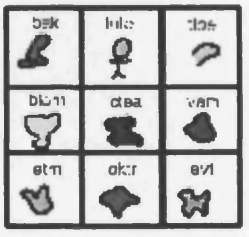
Do you need more time to talk?



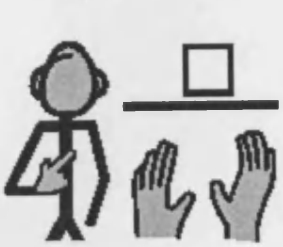
Do children have the right words on their AAC?

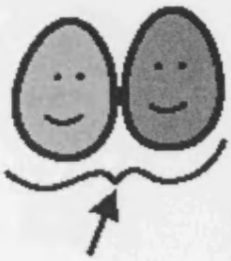




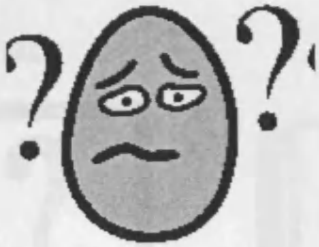


We want you to help us

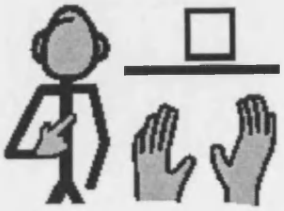




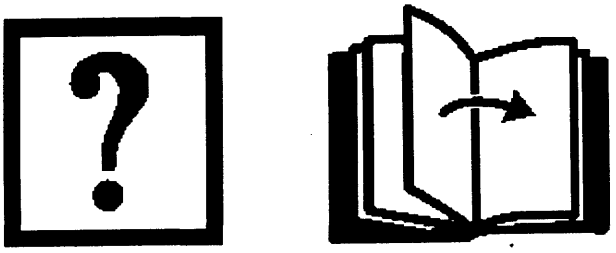
find out what the problems are.



We want your ideas.



What next?

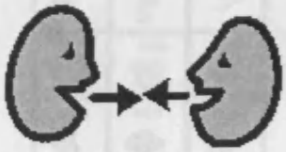


We would like

to video

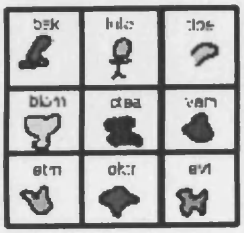
you

talking to

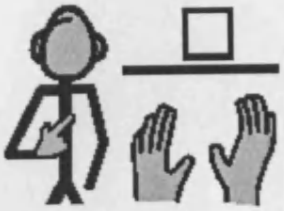


a friend.

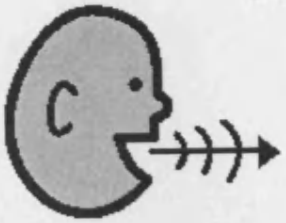
who uses AAC.



We would like

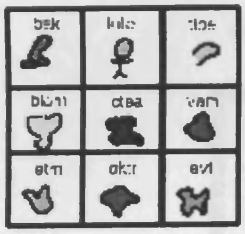


to talk to

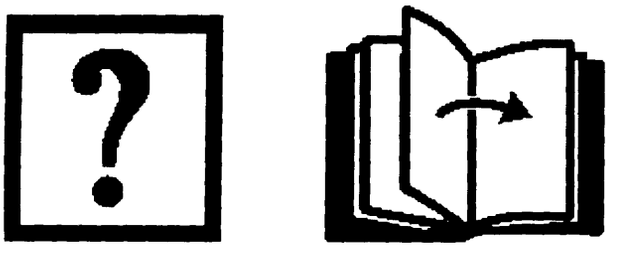


you about

AAC

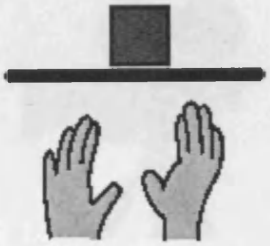


What next?



You can choose to work

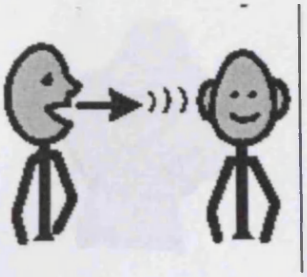
with us - if you want. -



If you don't want to work

with us that's ok.

Tell us



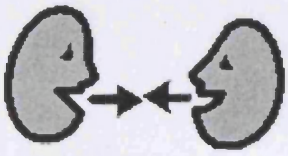
what you think.

You can

video

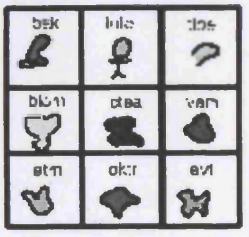
me

talking to



a friend

who uses AAC

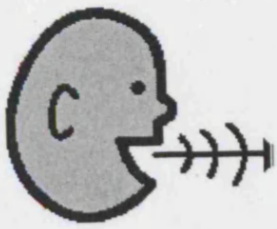


YES

NO

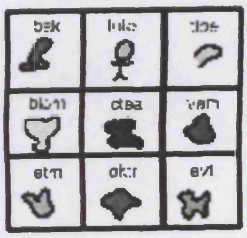
You can

talk to

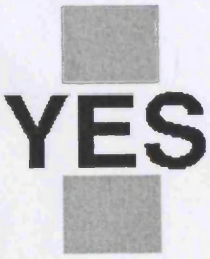


me about

communication aids



yes



no